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GERMAN WHEATS.

SOME time ago the German Government appointed Prof. Kreusler, of the Agricultural College at Poppelsdorf, to make analyses of the different varieties of wheat with regard to their baking qualities, and also as to the possibility of improving the quality of the different varieties. His first report on the subject is published in "Die Muehle," of which the following is a translation: The three samples of wheat were reduced and produced a flour of good appearance. A washing of the gluten gave the following result for the air-dried flour:

Sample sent.	Gluten obtained by washing.		Protein.
	Moist.	Dried.	
Sept. 11	87.1 per ct.	11.24 per ct.	11.44 per ct.
Oct. 14	29.3 "	10.82 "	11.06 "
Oct. 18	24.0 "	8.38 "	9.19 "

These results again verify the observation repeatedly made that the relative proportion between moist and dried gluten is by no means constant. A comparison of the figures denoting the protein with those for the dried gluten, show them to be near enough alike for average purposes, and demonstrate that the albumen present can be separated entirely as "gluten" by washing. The protein percentage was obtained for the purpose of determining the food value by multiplying the nitrogen present by 6.25. The baking trials made with these three flours did not show any appreciable difference in the quality. But as soon as our improved apparatuses at the laboratory are at hand, a more detailed investigation will be made.

My visit to nine different milling establishments has convinced me that the leading millers are well satisfied with the present processes of milling. The wish to improve the quality of the abundantly yielding English wheats was expressed everywhere, although looked upon as rather visionary; the different grades of flour produced appeared to be determined by the local taste for a peculiar brand more than by anything else.

The methods to determine the value of the grain differed widely among the best millers. Primarily, it seems to depend upon the total appearance of the kernels, and there cannot be any reasonable doubt that long years of experience and a trained eye are able to form a very decided opinion in such matters, a method, however, which has but little value to those not so trained. There is not so much importance conceded to the washing-out of the gluten; the so-called aleurometer, a small tube in which the elasticity of the gluten is measured, had been tried a few times, but abandoned again. In Halle, where the Agricultural Society had caused a series of experiments to be made with this instrument, I had an opportunity to see some of the samples, and my conclusions with regard to it correspond to those made by Prof. Maercker, namely that the quantity of moisture in the gluten, at best an uncertain and variable factor, is the principal cause of the stronger or weaker elasticity of the gluten as measured with this instrument. (See THE MILLING WORLD, Dec. 11, page 1.)

The color of the gluten is looked upon as a test of value, but generally the color test is applied not to the gluten itself, but to the flour, by dipping a compressed layer of it on a glass plate carefully into water and observing and comparing the variations of flour.

The leading test however, that appeared to be universally accepted by all millers everywhere is the actual baking; but of course this always differed with the individual and I have been unable to find any resemblance of uniform conditions to determine this test. My repeatedly expressed desire to obtain samples of flour of acknowledged poor baking quality has so far met with no encouragement; indeed, in some establishments the baking test seems to be applied to mixtures of flour only and not to the individual varieties.

In view of the present insufficient knowledge about the quality of the different varieties, it seems to me a useless undertaking to try and improve the quality of any one, at least from the standpoint of an agricultural chemist. A practical and intelligent cultivator may in this connection obtain the best results. Mr. Rimpan, one of the most experienced men in this field, was by no means very sanguine about the ultimate results of experiments made in this direction; other competent men state that the hope for any improvement in the quality of the grain may well be abandoned, as a high yield and first-class quality appear to be antagonistic to each other. Besides this, I was told that the smaller value of the English wheat is more than counterbalanced by the abundance of its yield. These were the statements of those whose opinions must be looked upon as of value, and as I have no knowledge of this subject, I state what was told to me. Consequently the chemist finds his labors reduced for the present to the determination of the causes which give different products in baking, and to discover if by any ways and means things can be improved in this direction. That, however, is a question which can be solved only slowly and gradually, as the fundamental conditions are almost unknown. As one of the most necessary conditions for its final solution we must know in what manner the different degree of baking quality asserts itself and whether it is possible to arrive at some simple rule to demonstrate such differences. Mr. Rimpan has already endeavored to introduce some "baking scale," substituting approximate figures in place of such uncertain terms as "good," "bad," etc., for the baking qualities of the flour. Even without hopes for a final success the matter seems to be important enough to merit a careful investigation. For the present I repeat the desire to obtain as many samples of the poor baking flours as possible, for good ones can be obtained everywhere.

CHICAGO WHEAT AND FLOUR TRADE IN 1884.

The Chicago "Tribune" of January 1, contained a somewhat elaborate review of the trade, commerce and manufactures of that city for the past year, from which we make some extracts touching the volume of the wheat and flour trade.

WHEAT.

A dull and heavy tone has characterized the wheat market nearly all through the year. Starting in at a low point it skirted for a few months on the average of prices for many years past, then was carried far below it by the spring depression in general business, and then showed itself unable to recover. The year 1884 was the first one

since 1862 that did not see wheat sell above a dollar in this market, and this very fact fooled thousands of men, who lost money by risking it on the probability that history would repeat herself in this particular. The repetition did come, but not the one looked for; it came after a twenty-two years' interval. A continuous pressure of wheat on the market, which no one seemed to want, had been the leading feature in 1883, but it was intensified last year. The result was simply a glut which bade fair to overwhelm those who had invited it.

The heaviness of the last two years is largely a consequence of the speculative excitement that reigned here in 1879-1882, which was open to the charge of trying to take a mean advantage of the necessities of the consumer. Wheat averaged \$1.14½c per bu in this market for two years. The high price stimulated an enormous increase of production here, especially on new areas in the Northwest, and gave a new impetus to wheat culture in British India, Algeria, and Australia, which has since threatened to render the Old World independent of America in the matter of breadstuffs. We are now suffering the consequences of the greed of a few who sought to grow rich at the expense of the many. Our wheat is almost unsalable, though offered for much less than at any other time since Chicago became a speculative market, and the glut has well-nigh impoverished the British farmer as well as the American, the price of wheat in England being the lowest known for 104 years past.

The price of regular wheat varied from 96½c. Feb. 12 to 69½c. Dec. 15, being a range of 26½c, or about 38½ per cent of the lowest price, against 89½c a \$1.14½, or a range of 27½ per cent. for 1888. The range was thus 18 a. 20c. below that of 1883, and the minimum prices, in currency, was lowest known since the early part of 1862. But the quantity handled here shows a decided increase. Our receipts last year are reported as aggregating 27,960,340 bushels against 20,364,155 bushels in 1883 and 23,008,596 bushels in 1882, while the shipments were 23,526,879 bu. against 11,728,754 bu. in 1883 and 19,767,884 bu. in 1882. The figures compare very unfavorably, however, with the 34,106,109 bu. received in 1879, which was the largest annual movement reported for this market. But the most natural mode of comparison is by crop years, which end with July, and we should take into account the flour movement for the same time if we would note the changing importance of Chicago as a point which helps to feed the world. The following is such a comparison for the last five crop years, flour being reduced to its wheat equivalent to obtain the figures in the right-hand column.

Year.	Flour, bbls.	Wheat, bu.	Total, bu.
1879-80.....	2,991,422	20,538,833	42,995,232
1880-81.....	4,599,325	22,017,598	42,714,560
1881-82.....	4,086,102	14,125,822	32,288,261
1882-83.....	4,595,069	21,338,323	42,016,134
1883-84.....	4,619,950	21,835,890	42,625,195

The aggregates for the first seven months of 1884 were about 2,738,000 bbls. of flour and 6,597,000 bu. wheat, or a total of about 19,018,000 bu. Subtracting these quantities from the aggregates already given for the whole year we shall have the quantities to be carried forward to apply on the current crop year. The total from the diminished

crop of 1883 was very nearly the same as from the crops of 1879 and 1880, and much larger than any others in our history except the 47,717,689 bu from the crop of 1873 and the 45,668,765 bu from that of 1878. And the figures so far indicate a decided increase from the crop of 1884. This does not show that we are falling behind in our handling of the breadstuffs produced in the areas that could be expected to contribute their surplus through Chicago. We handle a smaller percentage of the whole crop because the increase of recent years is greater on the Pacific Slope and in the New Northwest.

The percentage of wheat in the total for the first five months of the last crop year was 64½; for the other seven months only 35½; and for the whole year 51½; against 50½ per cent. from the crop of 1882, and 43½ per cent from that of 1881. Here is another important fact, which is in conflict with a widely-entertained opinion. Our wheat trade is undoubtedly kept down in volume by the increasing manufacture of flour in the west, but is far from being actually reduced by it from year to year in the recent past. Our stocks of wheat have been very large. The aggregate in store January 5 was 12,887,455 bushels, and this grew slowly to 12,770,090 bushels March 8, then declined to 2,303,011 bushels August 9. It then increased almost steadily to a little over 8,000,000 bushels at the beginning of the season of winter storage, and has since grown to 13,254,906 bushels, with a visible supply of 48,000,000 bushels. The latter is much the largest ever known, and has grown from 12,640,000 bushels the last week in July, which was the minimum point of the year. The largest visible supply reported previous to last winter was 31,023,000 bushels January 17, 1880.

The market had been dull during the latter part of 1883, except a little flurry in the middle of December, on buying for New York parties. Our smaller crop had not induced strength in Europe, as we had a large surplus over from the previous year, and England was loaded down with Indian wheat. The lassitude of our market may be inferred from the fact that seller the year sold January 4 at 94½ cents (the first sale noted), and delivery was made three days afterwards. Our market rose to 95½ cents on the 7th, under news of a good export movement from the seaboard, but soon fell off when it was found that the exporting was nearly confined to a lot of 255,000 bushels of weevily wheat which had been posted in New York. It was taken by France at prices which caused the weevil to be ignored, though the people of that country professed to be terribly afraid of trichina in our pork. Reported suspensions in the trade in San Francisco the 10th, and in New York the 12th, caused heavy selling here, under which we receded to 88½c. the 19th, with May at 95½c. At this price there was moderate buying, chiefly for May, on account of New York and Milwaukee, which sent cash wheat up to 92½c. the 25th with news of drouth in California, while Baltimore was reported to be exporting rather larger quantities, and some wheat was sold by parties here for export. News of rain on the Pacific slope a few days later sent it down to 90½c. February 1. A rise to 96½c. February 12 was the result of fears for the safety of the grow-

ing crop, while the receipts at primary winter wheat markets were so meagre as to lead many to think that the surplus in first hands was nearly exhausted. Also it was reported that the large stocks of wheat in England were chiefly inferior stuff which could not be used without a liberal admixture with American grain. News of snow in Kansas, with reports that Russian wheat was being offered in London at 20c. below what equal qualities of Chicago wheat would cost laid down there, sent it down to 90 $\frac{1}{4}$ c. February 25. A reaction of 1 $\frac{1}{2}$ c. ensued on reports that the Canada crop promised poorly, while several parcels of No. 2 spring here and a big lot of wheat in St. Louis were sold to interior millers, because of small deliveries by farmers.

The market declined to 90 $\frac{1}{4}$ c. March 11, at which point Kent and Armour were understood to buy about 4,000,000 bushels, which sent it up 1 $\frac{1}{2}$ c. by the 15th. In the next twelve days the market declined 10c, with news of genial rains in the southwest, which, with the persistent weakness abroad, induced heavy foreign orders to sell short here. The selling was particularly active the 24th, probably as much as 7,000,000 bu. being let go, a good deal of it long wheat. This decline permitted the beginning of the active export movement that marked last spring, to which two causes contributed: The sharp falling off in offerings of winter wheat from other points at the seaboard, which opened an avenue for our spring grades, and a slashing of rail freights by roads anxious to get hold of the grain before the opening of navigation. It is estimated that export orders were here for an aggregate of fully 4,000,000 bu. March 27, all of which could have been filled at 81 $\frac{1}{2}$ c. cash or 86 $\frac{1}{2}$ c. for May, had the market remained there long enough to permit so much buying to be done. The market touched 84 $\frac{1}{4}$ c. cash the next day, chiefly on the report that 600,000 bu. wheat had been taken through to New York at 12 $\frac{1}{2}$ c. per 100 lbs., while another 1,000,000 bu. had been taken on the same or nearly equal terms. But the English market sickened on the prospect of increased supplies, and some export orders on the basis of 78c. for regular were canceled. That sent us down to 80 $\frac{3}{4}$ c. March 31, and we reacted to 83 $\frac{1}{2}$ c. April 2, on some more export business, with the rumor that Armour had decided on running a 25,000,000 bu. corner, being just about ten times the quantity sold for export during the preceding fortnight. The discovery of this mistake sent us down to 75 $\frac{3}{4}$ c. April 7, with 79 $\frac{3}{4}$ c. for May delivery. This being the lowest price known in twenty-two years, except on one "stump-tail" crop, induced sharp buying, William Young & Co. taking on about 2,000,000 bu. here, with enough in Milwaukee to keep the price in that market about 5c. above ours, both for May delivery, and it soon began to be suspected that the short sellers had got into a trap.

This idea, with unfounded rumors that untold millions of bushels had been bought here for export, caused an advance (here) to 81 $\frac{1}{4}$ c. for cash April 10, and regular sold at 78 $\frac{1}{2}$ c. the 14th, the day before the expiration of the winter storage term. The next day (15th) Hobbs bought from Murray 1,000,000 bushels in one lot, at 84 $\frac{1}{4}$ c. for May, being the biggest single transaction ever recorded here. The seller subsequently filled in at a loss of about \$8,000. Severe cold weather the 18th and 21st, with news of decreased spring acreage, fears of damage to the winter crop, and good buying for interior millers caused a sharp advance here which influenced Liverpool, and further encouraged local bulls. The market for May sold from 90 $\frac{1}{4}$ c. to 94c. Saturday, April 26, and touched 95c. Monday, with regular at $\frac{1}{4}$ c. discount. This advance was caused by

excited filling of a lot of shorts left out in the cold by the suspension of Fraley of St. Louis. There was then a recession to 89 $\frac{1}{4}$ c. May 1, with a drop of 2 $\frac{1}{2}$ c. in New York on account of financial troubles there. May 5 the market touched 95c. with news that the Minneapolis millers had advanced their prices 5c. per bu. because of the growing scarcity of wheat in that region. The next day reports of the Grant & Ward failure sent it down to 91 $\frac{1}{4}$ c. It reacted to 93 $\frac{1}{2}$ c. May 8, as the larger holders here had hesitated to realize. Next day the market was partly sustained by the rumor that freights on wheat to Liverpool had been offered at 15c; it broke badly the 10th, partly on heavy selling orders from England, and declined to 84 $\frac{1}{2}$ c. the 18th, being helped down by reports of Wabash troubles the 12th, Western Union difficulties the 13th, and Metropolitan Bank failure the 16th. Then it turned up to 91 $\frac{1}{2}$ c. May 21, in spite of the Garrison suspension of the 19th. William Young & Co. sold out about 2,500,000 bu. the 23d, being the last of their load, and C. J. Kershaw announced his determination to "settle up" all outstanding trades. These things, with the Morgan suspension the 24th, caused a decline to 85 $\frac{3}{4}$ c. the 26th, from which there was a reaction to 90 $\frac{1}{4}$ c. June 2, principally due to news of drouth in England and reports of a widespread appearance of chess in Western wheat-fields.

The leading points in the inside history of these five months were, briefly, as follows; Young & Co. were on the bull side of the deal for Milwaukee parties, from the beginning, into March, and gradually let go at a loss. Ream and Jones took hold the first week in the year, in a quiet way, and gradually extended their purchases till they owned about 8,000,000 bu. here, all the wheat in Toledo and St. Louis, and some at other points. They held on for some weeks till satisfied that the market "would not bull worth a cent," and then sold out on the March Buge, probably with a small profit, part of their load being taken by Young for his clients. On the ensuing decline they sold out and Fraley came in as a bear, making heaps of money at first, but had to suspend on the April rise, after having handled about 7,000,000 bu. Young & Co. took hold nearly at the bottom (April 7), understood to be for new men who had not previously had a venture in wheat. They held on till after the New York failures, but managed to get out with a good profit after having held about 6,000,000 bu. at one time, most of which was for parties who had tailed on to the original deal. A little less than 10,000,000 bu. was shipped out during these five months, nearly one-third of which was handled by Kershaw, mostly on straight export orders, though accompanied by selling here for future delivery as protection against possible loss by the shipments.

Since that epoch the market has been little else than a tangle of underbrush, moderately active at times, but generally in a small way, and often very dull; the market being bare of outside orders, while local operators were afraid to invest largely on either side. The course of the market was downward; with a good deal of buying on stop orders as the market successively touched 85c, 80c, 78c, 75c, 73c, and 70c for the trading future, which was mostly two months ahead of cash delivery, only to have the wheat sold out at a loss, as the market was continuously depressed by large receipts with an absence of real foreign demand, which made stocks here and elsewhere accumulate at a rapid rate and rolled up an enormous visible supply. The market for regular declined from 90 $\frac{1}{4}$ c. June 2 to 87c. June 5, reacted on a moderate export demand here the next two days, with the New York posting another lot as out of condition. The 9th we touched 89 $\frac{1}{2}$ c.; then declined to 84 $\frac{1}{4}$ c. the 23d, with selling of about 1,000,000 bu. here the 12th

on account of a Cleveland failure, which put prices down to a point that permitted free buying for export here and in Milwaukee. This encouraged local bulls to take hold, sending it up to 86 $\frac{1}{2}$ c. June 25, after which it weakened and they sold out July 7 and 8 with a cholera scare that sent it to 79 $\frac{1}{4}$ c. July 9. Then rumors of big contracts for export at the reduction caused another wave of strength which carried the market up to 84 $\frac{1}{2}$ c. the 18th, though checked on the way by the Halstead-Haines failure in dry goods the 12th and the Fletcher of Indianapolis suspension the 15th.

The 18th brought the Spruance trouble, which was generally understood to be a failure in the absence of any information on the subject other than that it caused lots of trouble. The market receded to 80 $\frac{3}{4}$ c. July 24, with a St. Louis failure in steel the 21st., news of cholera in Philadelphia the next day, and of yellow fever in New Orleans the 23d, while it was reported that new wheat was being offered freely in New York. News of better export buying, with rather free filling of foreign shorts, put out at much higher prices, sent the market up to 84 $\frac{1}{2}$ c. July 30, the rise being aided by rumors of serious damage to the wheat crop in Western Europe. Then came news of more favorable weather in England, with free arrivals of new wheat in Kansas City and St. Louis, while we received four carloads of new spring, Aug. 4, some of which graded No. 2. The first arrival of the previous year was Aug. 1, against July 28 in 1882, and July 29 in 1881. Also the wheat from St. Louis and Kansas City came here rather freely, partly on through shipment (per lake), and this made the movement in the West appear to be much larger than the fact, while new English wheat was reported to be offered in London at 84s. 6d. per quarter, against an average of 48s. 8d. for the preceding ten years. The result of all this was a drop to 77 $\frac{1}{4}$ c. Aug. 12, Adams buying freely on the way down, but selling out near the bottom. The reflection that this was the lowest point touched in many years caused free buying, led by Hutchinson, and bad harvest weather in England induced purchasing orders from across the Atlantic. This caused a rise to 70c. Aug. 14, but there was a perfect avalanche ready to be sold at that point, with "news" that three-fourths of the crop of spring wheat in the Northwest would be marketed before cold weather, while the Washington Bureau was said to estimate that our wheat crop would aggregate 530,000,000 bu. This sent the market down to 76 $\frac{1}{4}$ c. Aug. 16, and then came news of trouble between France and China, followed by export buying of low grades on French account, which helped our market up again to 80c. Aug. 28.

Kent and Rouse (of Baltimore) were supposed to have been the chief buyers on this upturn, but whoever they were they sold out Sept. 2, and the market went down to 73 $\frac{1}{4}$ c. the 15th, with news that California had a very large surplus which holders were rushing to sell, while the Rockford failure helped to depress; and there was a semi-panic in breadstuffs in London the 11th, perhaps started by the report of heavy offerings of wheat from our Southwest in New York on a severe cut in freight rates. At the lowest point it was reported that Western farmers were checking up on deliveries, being unwilling to accept the reduced prices, and this caused both home and foreign shorts to cover rather freely here, while some wheat, chiefly the lower grades, was taken for export. This was followed by estimates that the acreage put into wheat for the next crop was some 15 per cent less than a year previously; and similar conditions were reported from Europe. The result of all this was an advance to 79 $\frac{1}{2}$ c. Oct. 1. Then higher

ocean freight rates and increasing receipts at Western points sent the price down to 72 $\frac{1}{2}$ c. Oct. 18 in spite of a liberal buying of low-grade wheat on this side for export to France, but Duluth was offering wheat considerably below our prices.

October 21 the news came that it was proposed to levy a duty of five francs per 100 kilos, or about 27c. per bushel on all wheat imported by France, which caused some speculative export buying in New York and Baltimore to get wheat into French ports before the duty should be imposed. This, with renewed reports of reduced acreage, and rumors of damage by fly in Kansas and Southern Illinois, helped our market up to 75c. October 29, from which it fell away to 70 $\frac{3}{4}$ c. November 10 amid the dullness attending election and the long wait for definite information as to the result. It reacted to 73c. November 15 (73 $\frac{1}{2}$ c. for fresh receipts), with a good deal of buying for January for foreign speculators, while it was again said that our farmers were letting up on deliveries, and claimed that the surplus in first hands was much smaller than at the same time in 1882, the deliveries having been 25 per cent. greater than then from a crop of about equal magnitude. It fell back to 71 $\frac{1}{2}$ c. November 18, which induced more buying on foreign account that sent it up to 74 $\frac{1}{2}$ c. November 25, with a stronger Liverpool, which, however, was supposed to be partly helped by men here who wanted a change in order to get out of a \$50,000 loss on the Spartali failure. November 29 brought news that the French government had proposed a tax of two francs per 100 kilos, or about 10 $\frac{1}{2}$ c. per bushel, and ocean freight rates were up to 7 $\frac{1}{2}$ d. against 1d. two months previously. This, and a continuously rapid increase in the visible supply, due to an enormous movement from the Northwest, sent us down to 70 $\frac{3}{4}$ c. December 9 (with May below 80c.). Vigorous filling of shorts, with some buying for investment, caused a 1 $\frac{1}{2}$ c. rally, but it broke to 69 $\frac{3}{4}$ c. December 15, with 76 $\frac{1}{2}$ c. for May, and then reacted on the belief that much the greater portion of the Northwestern surplus had already been marketed, which induced better buying for export. December 20, Fraley, of St. Louis started a "boom," which sent us up a little, and last Tuesday the market advanced to 76 $\frac{3}{4}$ c. on foreign buying orders from people who believed the close of the year would show a large decrease of stocks in England.

FLOUR.

The market for flour has been a more satisfactory one than for two years previous in spite of the depression in breadstuffs generally, which pared prices down to the quick. The movement through the city and the quantity handled by Chicago dealers, shows a large increase, especially in the latter. The receipts of the year aggregated 4,661,841 barrels, against 4,295,515 barrels in 1883, and 4,179,912 barrels in 1882. The shipments were 4,989,602 barrels, against 3,999,431 barrels in 1883, and 3,843,067 barrels in 1882, the difference, plus the city manufacture, very nearly representing the local consumption. In prices the market has pretty closely followed the lead of wheat, as might be expected, and the course was generally downward. Still the parallel was not closely observed during the first half of the year, as flour held up owing to relative scarcity on the old crop, while wheat was beared speculatively on the prospects for the new. Prices early in May were nearly the same as in February and March, though there was a slight weakening in April. In the latter part of May and early in June prices shaded off, then recovered, and turned down in July, weakening badly after the new crop moved freely, and since then flour could only be sold by accepting successive parings down in the profits over and above the cost of production. The total decline in prices

during the last eight months was \$1.25 per barrel or 25 per cent. on winters, \$1.50 per barrel or over 30 per cent. on the better qualities of springs, and about 50 cents on the lowest grades. The result of this pressure has been lower prices for flour than had been known in this market for a quarter of a century. One result of the shrinkage was, however, that flour was sold more on commission than for some time previously. The millers who adopted the policy of consigning flour to the east and Europe independently of the Chicago market, suffered small losses in 1883, and still more last year. Hence they have fallen back upon the policy of sending their product to a market where it will be pushed judiciously without slaughtering prices; and all the more as they were thus able to avoid the shrinkage in prices during transit to Europe, leaving that to be borne by the party who bought on foreign account. Hence there has been much less of demoralization in the trade than might have been expected, though standard flours declined from 32s. early in the year to 25s. later, c. i. f., per sack of 280 pounds. Part of this decline was due to smaller pressure to sell on the old crop, and part to changes in freight rates, though the latter were sometimes very low in the first half of the year.

The export trade of Chicago was not far from one-quarter larger in 1884 than in 1883; though the 400,000 barrels reported as shipped to foreign points on through bills of lading is less than the quantity reported for 1883. There was a steady gain in the trade with Europe, but the greatest part of the increase was with Canada, an enormous quantity having been sent there in the last five months, though subject to a duty of 50 cents per barrel. The fact seems to be that the Canadian soft wheat does not make flour that is strong enough to suit consumers without a liberal admixture with stronger qualities from the States. Of course a part of our shipments to Canada have gone to Montreal and Quebec en route for Europe. One house alone in Montreal took about 200,000 bags in August, September, and October. Chicago commission men have not sold much flour for domestic consumption, except within about 100 miles of this city, the eastern trade being chiefly supplied direct from the mills, but Chicago millers have done their full share in that direction. In fact they have an advantage over their brethren in the interior since the change in the warehouse system, which permits them to take such grain as they prefer, at first price, without being obliged to pay a storage tax, and then not always get what they want. We note that they chiefly produce a good grade of flour, which contains all the farina, not separated into best and inferior grades, as is the case in the Minnesota mills.

The flour sold here is manufactured in a wide range of territory. It embraces large quantities made in Ohio and Indiana, which do not come to this city at all, but go direct to Europe. We receive mostly from Illinois and Iowa, but recently have much increased our receipts from Missouri, where wheat culture has undergone a marked change for the better. Colorado also is sending us more, though it yields very little money to the shipper there after paying costs of transportation. St. Louis sends less. She used to supply a large part of our local consumption, but has sent about 50 per cent. of her flour down south the last year, the consumption in that part of the world having enlarged immensely with an extensive change from corn bread to the wheaten loaf. Winter wheat flour has grown in favor rapidly for three or four years past, and is yet gaining. The introduction of the roller process was at first supposed to be exclusively for the benefit of the spring grades of wheat and inapplicable to winters. But it is found now that the rollers effect at least as great improvement in flour-making from the lat-

ter as from the former. The fact has proved a genuine surprise to the trade. A good many new rollers were put in last year in the winter wheat sections, miller being forced thereto by the competition of their neighbors. In the spring wheat sections there is little change in that respect, and no inducement for it. The Minneapolis mills have made money, but smaller ones in the northwest have had a hard struggle, and not a few of them have recently been forced to the wall. The use of bags instead of barrels is growing in favor with the home trade, and has now become the rule with exporters. The package costs less to begin with, does not lose one to two pounds by leakage in handling, permits the stowing of ten per cent. more flour in a given room, and does not endanger the ship by displacement in rolling seas. A good many 280-pound sacks are now put up for the English market. The coarse millstuffs ruled strong under a steadily good demand till a few weeks ago. The drouth in New England reduced green feed there almost to a minimum, and to this fact is chiefly due the relatively high prices which bran and middlings commanded through the year; it was helped, however, by the dearness of corn.

WAGES AND COST OF LIVING.

We begin the new year, says the New York Commercial Bulletin, with a general sense of depression. This is due, probably as much to the general reduction in wages of labor as to any other cause. All over the country, during the past few months, there has been a readjustment of the terms of labor. Employers in a great number of instances have found themselves unable to continue operations, in view of the decline in the prices of their products, without a corresponding reduction in the cost of producing them. Accordingly, they have notified their workmen that it would be impossible for them to avoid more or less prolonged suspension of labor, unless lower wages should be accepted. In many other cases establishments have been closed without any attempt to secure new arrangements, because employers deemed it safer not to add to the stock of goods unsold which already clogged the market. The great number of persons thus thrown out of employment, by seeking work elsewhere, rendered the readjustment of wages inevitable, and in consequence, the reduction proposed by those employers who were willing to continue work at all has been generally accepted. A late statement, prepared by Bradstreet's Commercial Agency from reports of its correspondents in all parts of the country, indicates that only about 17,000 persons are on strike, and about 316,000 unemployed, while most of the remainder, fully 80 per cent. of the whole, have accepted lower wages. It is supposed that the reduction in rates averages from 10 to 15 per cent.

These figures, however, apply only to the manufacturing and mechanical pursuits, and give little idea of the condition of labor in agriculture, in transportation, or in that large class of employments known to the Census Bureau as "personal or professional services." The wages of farm labor change more slowly than in other branches of employment, and depend more directly upon the immediate local demand and supply. In the wages of persons employed in transportation a change as great, probably, as in manufactures has already taken place. On the other hand, the rate of wages for ordinary labor by the day depends so largely upon individual needs and circumstances, and is at all events so low, that it can hardly be said to have undergone much change. One large class of persons, employed in domestic service, seems to be more nearly independent of all human vicissitudes than any other. The wages of that class have a faculty of

rising, but no perceptible faculty of falling. Depression there is felt, however, perhaps quite as much as anywhere else; not in the reduced rates of wages, but in the material diminution of the number of persons employed. In hard times, families contrive to get along with one servant instead of two, or with none instead of one, and find it a good deal easier than to cut down wages.

Thus, on the whole, there has been a very important decrease in the sum of money paid for labor in the aggregate. Probably, considering the number of persons unemployed, the sum paid for labor weekly is more than 15 per cent. lower than it was six months ago. This, by itself, would imply a very great change in the relative position of different elements of society and in the cost of production. It causes, too, more general and widespread dissatisfaction than any other of the many consequences of industrial disorder. Unhappily, the people who work for wages do not always consider that the cost of what they have to buy has also diminished. Taking wholesale prices as a guide, there has probably been so great a change that, in the aggregate, the dollar will now buy as much as \$1.15 would have bought six months ago. A considerable part of this decline, moreover, is reflected in retail sales, so that the actual cost of living to all laboring people has been reduced, though probably not as much in proportion as the aggregate sum paid for wages. The discrepancy is due to the inertia of retail prices. These do not yield in correspondence with a decline in wholesale prices, and the consequence is that some part of the compensating advantage of a lower cost of living is lost to the laborer who has to accept a lower rate of wages. But the remedy for this he has largely in his own hands. The buyers make retail prices. No combination of dealers ever has existed, or probably ever will exist, powerful enough to resist a general determination on the part of those who buy to go where they can get prices most closely agreeing with those of the wholesale market. The ignorance of many buyers, the indifference of many others, the want of concert between them, the tyranny of habit which moves most people to buy just where they have been in the habit of buying, all give the retail dealer an advantage of which he is sure to avail himself.

The adjustment of prices and wages to a lower level, however, has been absolutely necessary to a revival of prosperity. Those who suffer most by it are, after all, the capitalists, whose interests and dividends vanish, and whose property at the same time shrinks tremendously in market values. Those who live by the wages of labor are, as they ought to be, in a measure compensated for any loss of income by a decrease in the cost of living, and it rests mainly with them to determine whether the compensation shall in part be defeated by excessive retail charges. Meanwhile, the adjustment to a lower cost of production prepares the way for a more healthy and profitable industry hereafter; and when wages have touched a point at which producers can make a profit, an increase of production naturally follows; which, in this case, would mean a revival of trade and resumption of work by the unemployed.

A DOMESTIC MIRACLE.

"As I was walking down street this morning," observed Jones, "I saw a man drop a brass suspender button into a blind beggar's hat. He detected the fraud at once."

"I don't see anything strange about that," remarked Mrs. Jones. "Why shouldn't he tell the difference between a button and a coin?"

"He has had considerable experience in coins, I know, but I can't see how he knew it was a button."

"By the way it felt, of course. Why shouldn't he tell it?"

"I don't think he had felt a button before in twenty years."

"Why not?"

"He has been married about that long, I believe."

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1½ cents for each additional word. Cash with order. Three consecutive insertions will be given for the price of two.

SITUATION WANTED.

By a man who has had fifteen years' experience in running grist and merchant flour mills. Address, Wm. H. WOLLERTON, McElhattan P. O., Clinton county, Penn. 411

SITUATION WANTED.

By a young man who has had 2½ years experience in a feed and flouring mill. Address, G. G. MARVIN, West Hebron, Wash. Co., N. Y. 10

SITUATION WANTED.

A situation to learn the millers trade. Am 23 years old. Best of reference given as to character. Address, FRANK VAN VLEET, Tyrone, Schuyl county, N. Y. 1013

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1½ cents per word for one insertion, or 4 cents per word for four insertions. No order taken for less than 50 cents for one insertion, or \$1 for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

YOU CAN BUY THESE CHEAP.

Three McCully Corn Cob Crushers. The above articles are brand new, in perfect condition, just as they left the factories, and will be sold very cheap for cash. Address S. 30, care THE MILLING WORLD, Buffalo, N. Y. 11

FOR SALE CHEAP.

Four-run water power grist and merchant mill, with a good custom. All modern improvements to make first-class flour; machinery new; in a good grain-growing section on railroad. Would sell all or one-half. For further information inquire of GILGER & LONG, Hadley, Mercer county, Pa. 812

FISKE'S BOLTING REGULATORS

Keep the bolting cloth clean in all kinds of weather and in handling all kinds of stock. Increases the bolting capacity from 25 to 50 per cent., and prevents making specky flour. No shafting, belting or gearing required. Any one can attach it. I have a few of these devices which I will sell cheap. They are brand new. Send for description and price. Address MILL-WRIGHT, care THE MILLING WORLD, Buffalo, N. Y. 11

FOR SALE.

ONE OF THE BEST BUSINESS LOCATIONS IN THE STATE OF PENNSYLVANIA.

For the next 30 days I offer to sell my steam flouring mill, located at Sunbury, Pa., in close proximity to R. R. track, convenient to connect with short switch. The only mill in Sunbury—a town of 7,000 to 8,000 inhabitants and it being a powerful and still growing rail road centre—having 11 different outlets per rail—it is and promises to be one of the finest locations for a flouring mill in the country. Surrounded by a thickly settled agricultural community, from which wheat can be supplied all the year round to supply the demands of the manufacturing capacity of the mill. The mill is in good shape for a stone mill outfit, but can easily be without any serious expense converted into a roller mill. Having a press of other business on hand I will sell low and on easy terms if applied to soon. Any further information will cheerfully be given by W. C. LYON, Sunbury, Pa. 812



HOW DOES THIS SUIT?

"Cooch's Bridge, Del., Aug. 25, '84.
"Messrs. Kreider, Campbell & Co.,
"Philadelphia, Pa.

"Gentlemen: Your machine was sent here against an —, on condition that we should keep the best, and we tried each machine, and are frank to say that if your machine cost us \$500 and the other was offered us as a present we should take yours, as we cannot find a fault with it. The above machine has a capacity of 50 bushels per hour."

We think best not to publish name, but it will be given upon application. Address, KREIDER, CAMPBELL & CO., Philadelphia, Pa.

BOLTING CLOTH.

Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order.

CASE MANUFACTURING CO.,
Columbus, Ohio.

Office and Factory, 5th Street, north of Naughten.



PUBLISHED EVERY THURSDAY BY
THE AMERICAN INDUSTRY PRESS
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G. B. DOUGLAS, - - Managing Editor.
THOS. McFAUL, - - General Agent.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; can be remitted by Postal order, registered letter, or New York Exchange. If currency is enclosed in unregistered letter, it must be at sender's risk.

To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Card of Rates sent promptly on application. Orders for new advertisements should reach this office on Tuesday morning, to insure insertion in the week's issue. Changes for current advertisements should be sent so as to reach this office Saturdays.

EDITOR'S ANNOUNCEMENT.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with any manufacturing or mill furnishing business. Its editorial opinions cannot and will not be influenced by a bestowal or refusal of patronage. It has nothing for sale, but its space to advertisers and itself to subscribers.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

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NATIONAL.....S. H. Seamans, Sec'y, Milwaukee, Wis.
CALIFORNIA.....F. J. Parsons, Sec'y.....Oakland.
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OUR CLUBBING LIST.

NOTE—You can save money by availing yourself of the following offers. You can please every member of your family by accepting one or more of the following offers. To save money, and at the same time make the family happy, ought to be the main object of every married man's life. See how you can do this.

Take these for Yourself.

THE MILLING WORLD, per year.....\$1.50
WITH
The Builder and Woodworker.....(\$1.00 per year) 2.00
American Architect, weekly.....6.00 " " 6.50
American Architect, monthly.....1.75 " " 2.75
American Machinist.....3.50 " " 3.50
Mechanical Engineer.....3.00 " " 3.00
American Agriculturist.....1.50 " " 2.50
The Country Gentleman.....2.50 " " 3.50

Take these for your Family.

THE MILLING WORLD, per year.....\$1.50
WITH
Harper's Magazine.....(\$4.00 per year) 4.50
Harper's Weekly.....4.00 " " 4.70
Harper's Bazar.....4.00 " " 4.70
The Century.....4.00 " " 4.50
Frank Leslie's Illus. Newspaper.....4.00 " " 4.50
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Take these for your Children.

THE MILLING WORLD, per year.....\$1.50
WITH
St. Nicholas.....(\$3.00 per year) 4.00
Harper's Young People.....2.00 " " 3.00

Readers of "The Milling World" will confer a favor upon the publishers, and derive material benefit themselves, by mentioning this paper when opening correspondence with advertisers. Drop us a postal card when you have written to an advertiser, give us his name, and then we will put you in the way of getting the benefit. Don't forget this.

ISN'T THIS TRUE?

THE millers of the United States must be a set of men possessing an extraordinary share of stoicism, which enables them to bear with equanimity all the silent and loud wishes and expressions for their "well-being," uttered and unuttered by the millers of the European continent as well as by those of our neighbor, the Dominion of Canada. Why, in the name of Cæsar, will those American millers persist in supplying so superior an article of flour for a price so low, with which others find themselves unable to compete? And why will dealers and

consumers always make their purchases where they can be obtained cheapest? Perhaps our unsuccessful friends have, at various times, prayed for a small dose of the "Monroe doctrine," applied to American flour. The fact is that business knows the word "mercy" no more than nature herself, and just as relentlessly as nature will sweep out of existence thousands of plants and animals which were unable to adapt themselves to changing conditions, so the commerce of the world, sharpened by constant competition, will place the products of industry where it finds the readiest markets without asking, "Will those who produce the same line of goods in the vicinity of such markets suffer in consequence?" Such questions never enter the minds of the progressive men of business, not even if they ruin the whole industry of a district by their successful competition; even if thousands and thousands are thrown out of employment on account of the employers' inability to produce at as low a figure as the imported goods can be obtained—no business man will allow his sleep to be disturbed on that account for one moment.

Those who lose their employment on account of such competition must look for something else to do if they want to survive in this struggle for existence. How they do it, does not enter into the commercial calculations of the world. No matter how friendly the relations of nations may be, as a whole, business knows no friendly consideration of any kind, but looks after its own interest only. So long as the conditions in the United States favor a cheap production of grain, and so long as the millers are able to produce cheap flour, American flour and grain will be thrown upon the world's markets and ignorant sentimentality, craving for pity and compassion for the "poor down-trodden farmers and millers" of other countries, will never stop the constant flow of the export of breadstuffs. The only question to be considered in this connection is "who can produce cheapest." If European farmers are unable to compete with American, they must find some other form of employment.

After all, agriculture and the production of breadstuffs, is passing through the same transition stages as transportation facilities did 40 years ago, when railroad building improved the existing conditions immensely. But enforced idleness on thousands of men formerly engaged in wagon making, horse-raising, tavern keeping, etc., etc. The same transition stages have been passed through by almost every form of machinery, and every new form of invention aims at a reduction of manual labor. What has become and what does become of all the people thrown out of employment in this manner? They all find something to do after a while and the improvements made prove a blessing in the end. What would become of the grain trade at present if, for instance, all the elevators were suddenly taken away and all the grain had to be handled by manual labor?

If American flour and grain forces farmers and millers of other countries into different occupations, the convulsions attending such a change will be violent and prolonged, but ultimately conditions will adjust themselves to the new state of things, and the reduced price of bread will prove a blessing to the majority of mankind. And if improvements in agriculture, and future improvements in milling enable American flours to be produced and placed on the market at even cheaper rates than at present, no compassion for his European brethren will induce the American farmer to limit his capacity for wheat production, or the miller to curtail his daily output of flour.

It would seem that all intelligent millers should take an active interest in the scientific

investigations and analyses of their products; here in America at least we are accustomed to such methods, and the abundance of samples sent to the chemical laboratory of the Agricultural Department at Washington demonstrates sufficiently that the millers, of America at least, are fully alive to the advantages which can be obtained from such investigations. It would perhaps be looked upon as a curiosity to hear of an appeal by a chemist for flour samples refused by a miller, and why should it be? Scientific analyses of the products of any mill can do no harm to the proprietor, and can only aid him in a more correct understanding of the value of one or the other variety of grain. That seems to be readily understood in the United States. In Germany the state of affairs is different. Whether the millers of that country are unable to appreciate the value of such analyses, or consider themselves competent enough to know all about their flour, perhaps better than the chemist, or whether they are afraid of some few or many exposures resulting from the analyses, which may prove disagreeable to them, at any rate, the often repeated appeal made by the chemist, appointed by the government of Germany, for samples of flour of poor baking qualities finds no response whatever from the millers. The appeal has been published again and again in the milling journals, attention has been called to it repeatedly at meetings in various parts of the land, but so far the response has consisted in the receipt of two, actually two samples of flour for analysis. We may well ask what is the matter with our German brethren? For a country which takes the lead in scientific research, the action of the millers displays an amount of indifference which is astonishing, to say the least.

It seems that the recent attempt of the various combinations of grain producers and shippers to reduce freight rates on western railroads leading into Chicago have had the desired effect, for we are told that the managers of the Chicago & Northwestern; Chicago, Rock Island & Pacific; Chicago, Burlington & Quincy; Chicago, Milwaukee & St. Paul, and the Wabash, St. Louis & Pacific roads held a meeting at Chicago on December 29, and agreed to reduce the rates on grain from all points in western and central Iowa. According to this action the maximum rate on wheat to Chicago, which was 30 cents per bushel then, has been reduced ten per cent., and will be 27 cents; on corn, oats, and other grains, the rates have been reduced from 25 to 22 cents per bushel; the new schedule is to take effect after January 8. A difference of three cents per bushel in the expenses incidental to the handling of grain will be an important item in favor of the producer.

"GRAIN," late organ for the firm of Richards & Butler, of Indianapolis, has lost its grip, or, as the "Millstone" elegantly puts it, "has gone up the spout." This is recognized as the proper thing for grain to do. "Grain" recently passed into the proprietorship of H. C. Williams, its former, original, and continuous editor, and J. G. Sexton, for whom Mr. Williams vouches. These two gentlemen, after a calm and deliberate survey of the field, have decided that the sphere occupied by "Grain" is too limited for the proper exercise of their capabilities, hence will metamorphose "Grain" into "Inventor and Manufacturer" on or about February 1. May good fortune attend them. Williams is a good writer, and the scheme should pan out well.

TIMES of business depression seem to be especially conducive to bringing about discussions on the relative value of free trade and protection. The presidential election has checked it to some extent in America,

but in France the fever is raging at its highest, and the government will have a difficult position if it tries to give satisfaction to all. Petitions for free trade and petitions for increased grain duties are submitted by the most influential men on both sides, and the latest shot into the ranks is by the French Chamber of Commerce, which boldly declares itself in favor of free trade. It would be exceedingly difficult to imagine at present what the outcome of all this wrangle is to be, but a decision will undoubtedly soon be given by the French government, which will find it too hard a task to sit "on the fence" much longer.

It seems to be reasonably certain that wheat values are on the up grade, and this will inevitably lead to advance in flour values. Just what cause has led to the marked advance which was inaugurated January 2, it would perhaps be difficult to determine, but it is known that stocks in Liverpool and London are considerably less in volume than they were at this time last year and the year before, and it has been confidently believed that wheat must and would advance in value. It is perhaps well that the New Year inaugurated this advance with its advent. That values will advance slowly is to be anticipated, but a slow if steadily maintained increase will act powerfully in the restoration of commercial confidence.

WE have another ornament for the editorial room in the shape of a nicely framed, handsomely gotten-up lithograph from the Milwaukee Dust Collector Manufacturing Co. Two very spirited steeds are madly plunging off with an ancient sled upon which is mounted a "Prinz" dust collector in all the beauty of varnish, red paint, etc., while the driver, an old fellow whom we do not remember having seen around the Company's works, flourishes a streamer upon which is emblazoned the name of the machine which he is endeavoring to deliver with as little delay as possible to some impatient customer. The whole is gorgeous in bright colors and gold.

JUST put this down in your memory: That revival in business which has so long been anticipated is now in sight, indeed cap almost be felt. This little remark is not buncombe or bluster, neither are we flying off the handle in giving it expression. Go ahead and make ready to take advantage of the better times which are even now in progress toward us. Put a little starch on your backbone to stiffen it, and if in the next few weeks Tom Jones should happen to fail don't become alarmed and say Bill Brown is bound to go next. Bill may be in better shape than you believe. Let Bill alone and "tend to your own knittin." It'll keep you busy enough ere long.

THE subject of improved communication between France and England by means of a tunnel is again agitated. The latest news received in regard to this, state that the government will never give the desired permission, even if the parliament had passed a bill in favor of the scheme. Although John Bull is a free trader, he means to "protect" his island home from any land-communication whatsoever, and a tunnel seems to be out of the question as long as the possibility exists that an invading army will ascend through the English end of the boring on some fine day and invade Great Britain in spite of her navy.

If you want something very, very neat, tasty, and convenient in the form of a calendar for the current year, drop a line to Howes & Ewell, Silver Creek, N. Y., and ask them to send you a copy of that they have just issued. A New Year's card goes with it, and the whole thing is very nice.

ESTABLISHED 1856.

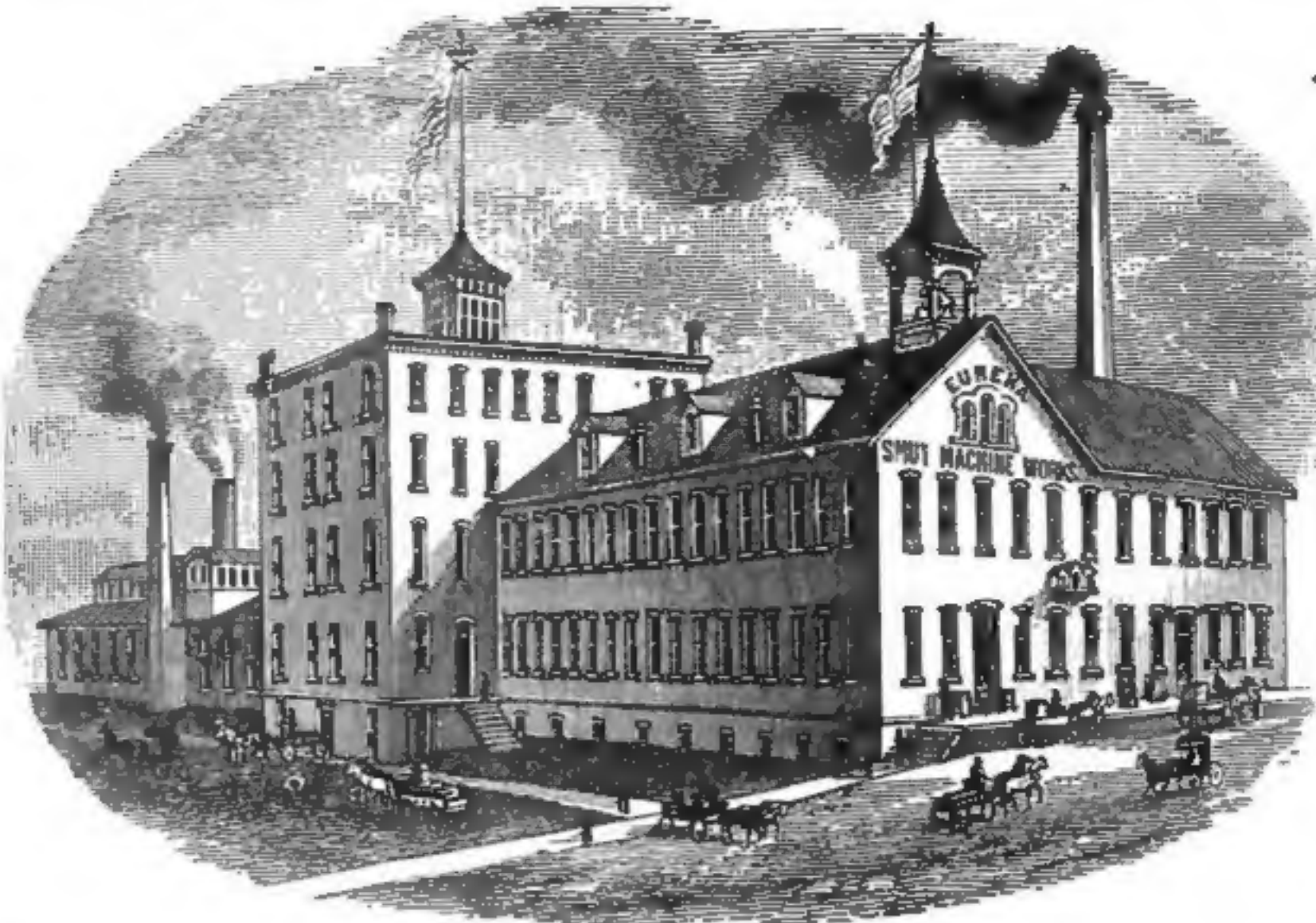
EUREKA GRAIN CLEANING MACHINERY | GENUINE DUFOUR BOLTING CLOTH**OVER 18,000 MACHINES IN USE.****OUR LINE COMPRISES**

The Eureka Separator,
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The Eureka Magnetic Automatic Separator,
Silver Creek Flour Packer.

Our establishment is the oldest, the largest and most perfectly equipped of its class in the world, and our machinery is known and used in every country where wheat is made into flour.

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Guaranteeing it to be equal in every particular to any other cloth on the market, except the Dufour. We have handled it for years, have sold thousands of yards of it, and know it will fully sustain our representations.

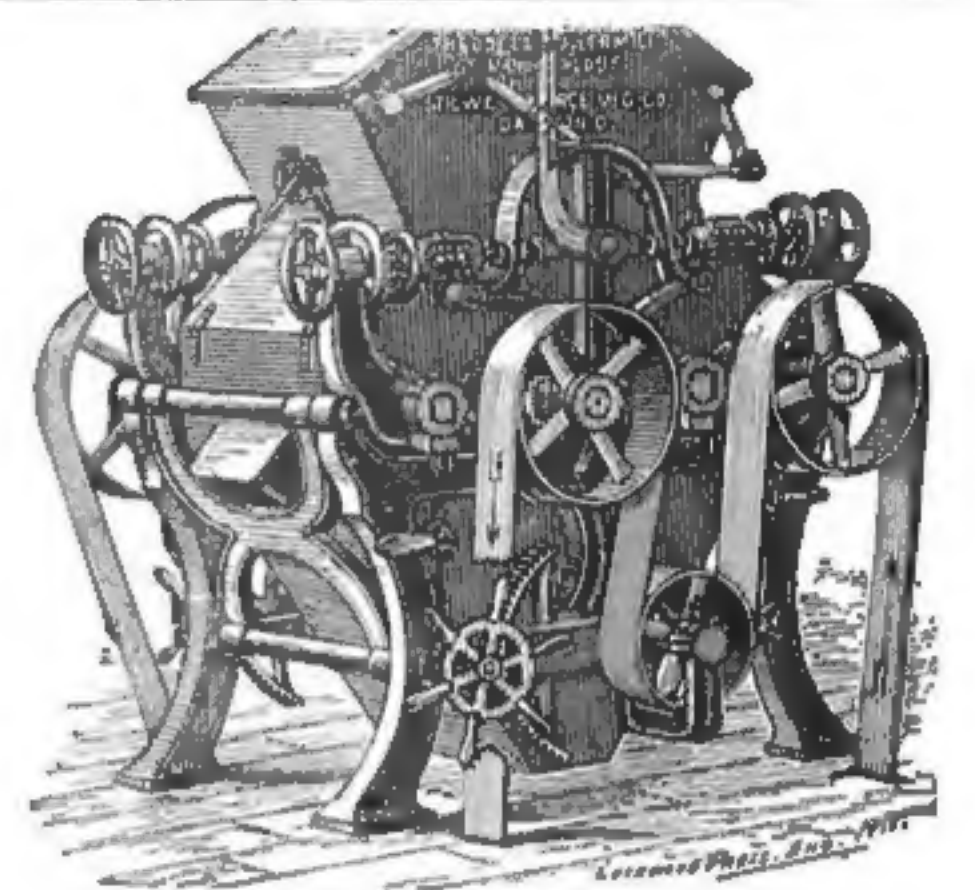
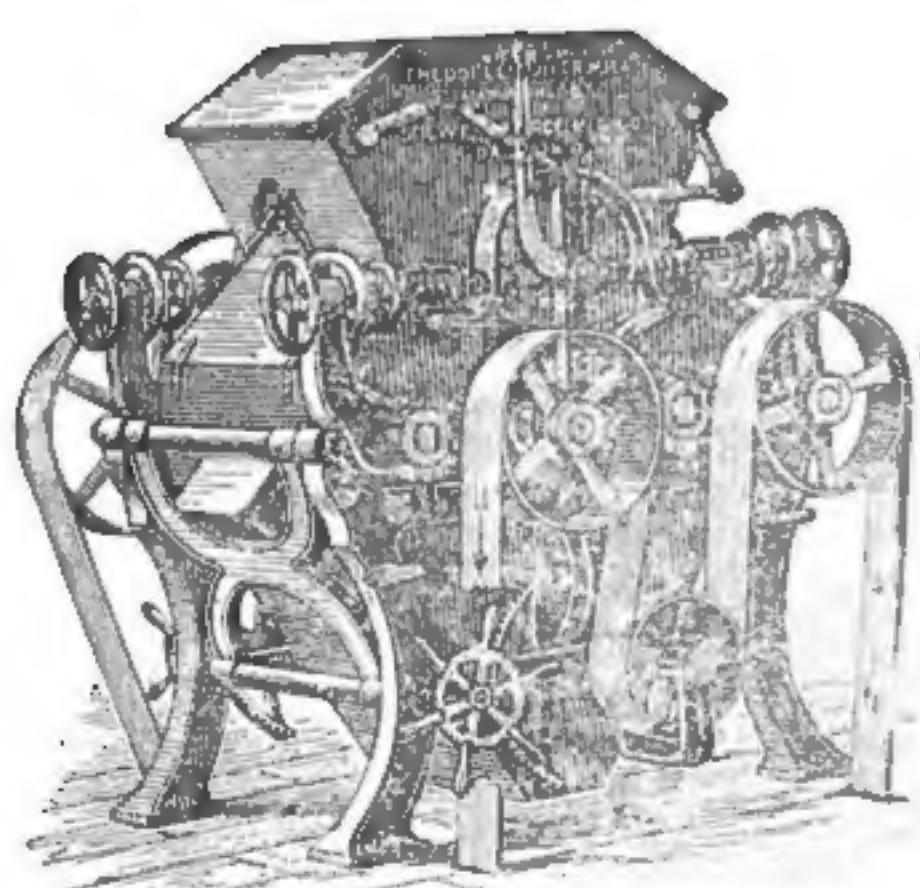
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SILVER CREEK, N. Y.

Simple,**Perfect,****Reliable,****Durable,****Economical,****Desirable,****Necessary.**

YOU SHOULD BUY
THE ODELL ROLLER MILLS

STILWELL & BIERCE MFG. CO.
DAYTON, OHIO.

**WOLF & HAMAKER, MILL BUILDERS AND CONTRACTORS,**

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Wolf & Hamakers Latest Improved Middlings Purifier, Bolting Chests, Patent Feed for Rolls
AND THE KEISER TURBINE.

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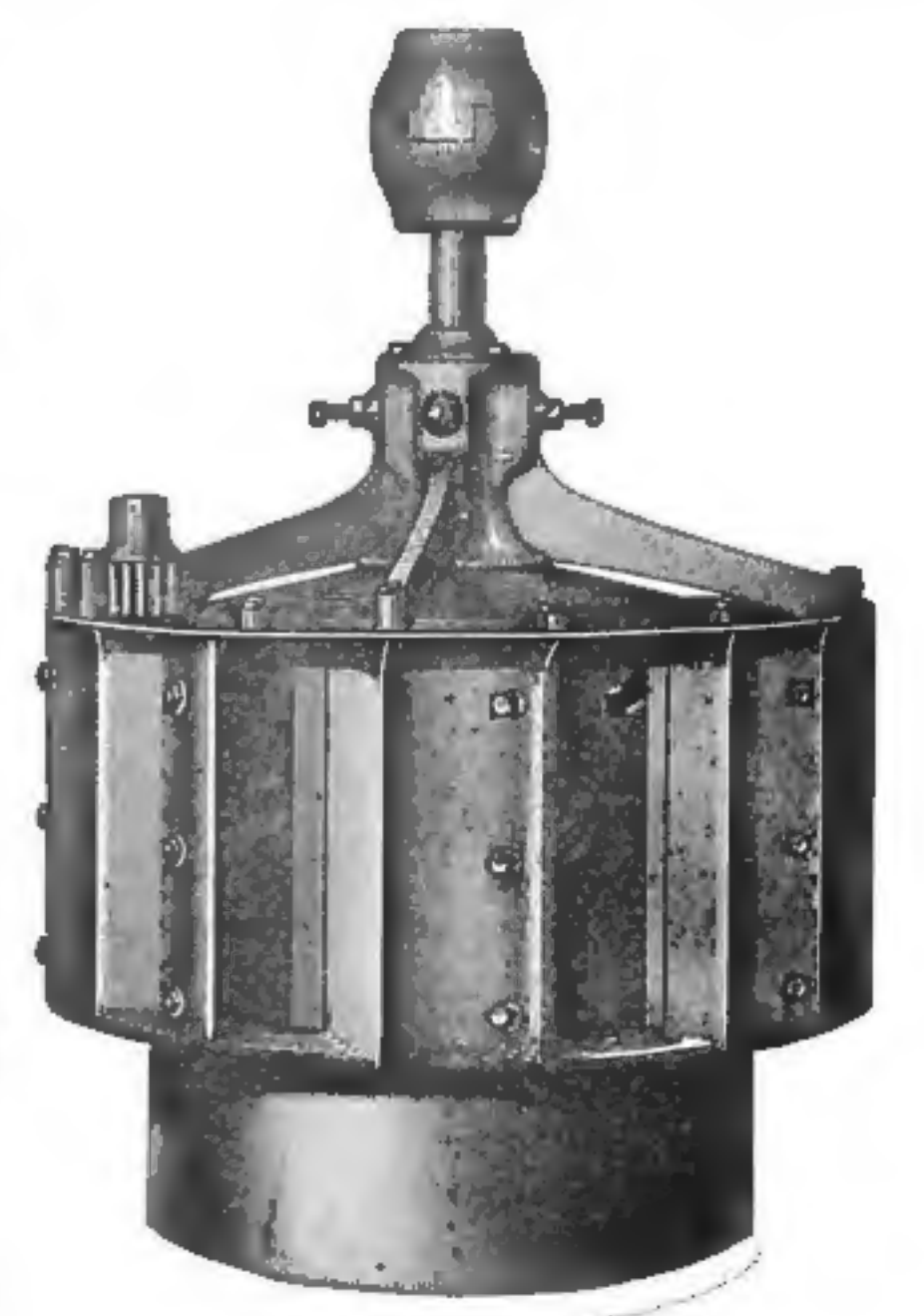
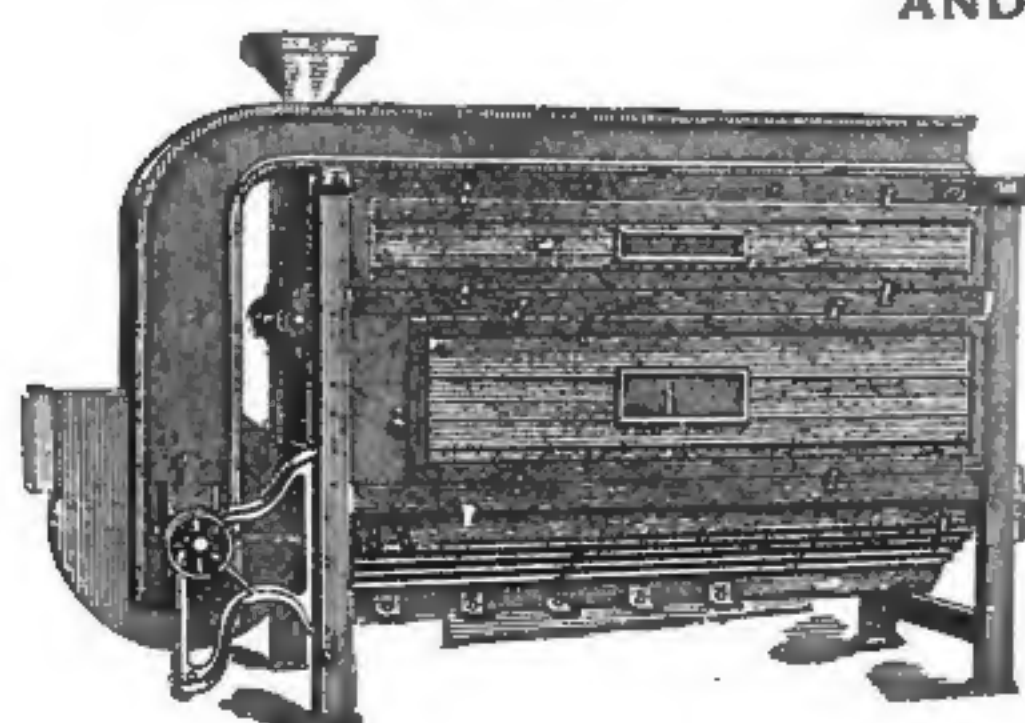
AND MILL FURNISHINGS OF EVERY DESCRIPTION.

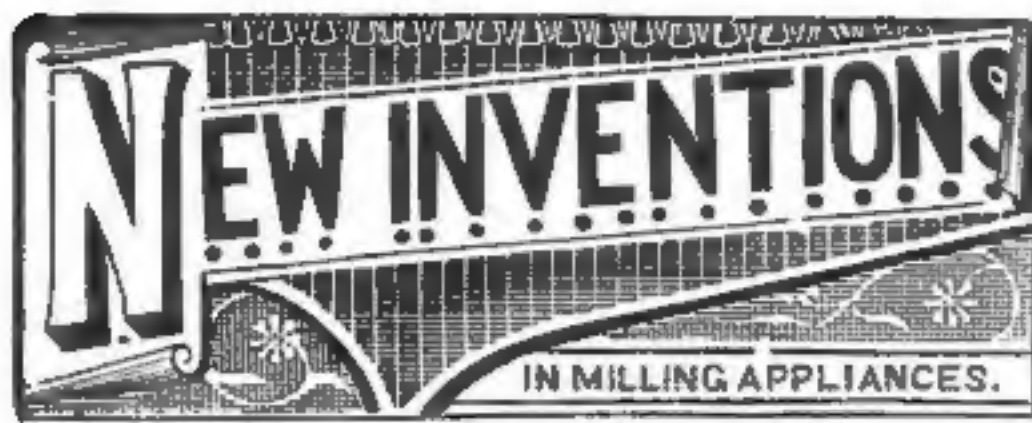
Wolf & Hamaker's Purifier is now manufactured as a single or double sieve machine to suit the wants of all millers. A perfect cloth cleaner. Results guaranteed to equal any machine for the work.

THE KEISER TURBINE.

ONLY BEST WHEEL BUILT Examine its construction and be convinced. The only wheel that really distributes and applies the water correctly and scientifically at all stages of gate, and at the same time closes water-tight and has an easy working balanced gate.

We are the agents for the E. P. Allis Roller Mills and we are at all times prepared to furnish plans and estimates and to contract for the erection of first-class mills of any desired capacity of from 50 to 500 barrels. Parties contemplating new mills or the remodelling of old ones will find it to their interest to write us for prices and terms.

WOLF & HAMAKER, CHAMBERSBURG, PA.



The first invention to which we shall refer this week is entitled a

GRINDING MILL.

This invention was patented to Joel T. Case, of Bristol, Connecticut, is numbered 309,196, and is dated December 16, 1884. It relates to improvements in grinding mills of the class known as "vertical disk mills," and the objects of the improvements are to better support the runner, to facilitate adjusting the stones for grinding finer or coarser, and to otherwise improve the construction, but as the invention is purely one of constructive detail, it is difficult of explanation in the absence of illustration.

The second invention is entitled a

GRAIN-SEPARATOR.

This invention was patented to William B. Vardell, of Charleston, South Carolina, is numbered 309,810, and is dated December 23, 1884. It relates to a fanning-mill or separator for rice or other similar produce; and the novelty consists in the construction, arrangement, and adaptation of parts, and the object is to provide a machine which will have peculiar means for vibrating the shoe, and novel means for separating the chaff and conveying the same to opposite sides of the machine. This invention is one of comparatively small interest to millers.

The third invention is a

MACHINE FOR DEGERMINATING AND SCOURING WHEAT.

This invention was patented to Wells Ely Sergeant, of Minneapolis, Minn., is numbered 309,574, and is dated December 23, 1884. Wheat kernels in their natural condition carry at one end what is commonly known in the art as the "germ," and at the opposite end a light fuzzy portion, both of which must be removed before the reduction of the grain, in order that they may be successfully separated therefrom. The body of the kernels is also enveloped in an external jacket, commonly known as the "husk" or "bran," which must be left as nearly as possible in its original condition—that is to say, continuous and of full strength and thickness up to the time of the first reduction, in order that it may be loosened thereby in large pieces adapted for ready and successful separation. It is the purpose of this invention to effectually remove the germ and fuzzy matters without reducing the thickness or strength of the bran and without fracturing either the bran or the outer portion of the berry. To this end it relates to a machine composed, essentially, of horizontal disks revolving within a body provided with internal flanges which overlap the edges of the disks, the invention consisting in the peculiar construction and combination of the parts. The machine may be constructed with a single shaft provided with disks, or with two or more such shafts, so arranged that the disks of one will enter between those of another. An upright rigid frame is provided at its upper and lower ends with bearings to sustain two upright shafts. The bearings in which the lower ends of the shaft are stepped are adjustable vertically in a bridge-tree, and sustained by means of hand-screws, commonly known as "tempering" screws, by means of which the bearings and shafts may be raised and lowered, as required. In place of the screws other equivalent means may be employed to adjust the shafts vertically. On each of the shafts is secured at suitable distances apart a series of horizontal disks, each of which has its upper surface ribbed, toothed, or otherwise formed to cause an abrasive action on the ends of the grain.

Each disk is provided on the under side with a number of peripheral depending studs, preferably made of sectional form, with their inner vertical surfaces inclined from the edges toward the center of the disk. The shafts are separated a distance slightly greater than the diameters of the disks, which are so arranged that those of one shaft revolve between the edges of those on the opposite shaft. Within the main frame is secured an upright perforated jacket or casing, which follows the outer edges or margins of the disks at a distance ordinarily of about three-fourths of an inch therefrom. This jacket serves to retard the passage of the grain and to confine the same subject to the action of the disks. Against the inner surface of the perforated jacket, are secured a series of horizontal flanges or rings, the inner edges of which overhang the edges of the disks. These rings serve as scouring-surfaces to act upon the ends of the grain, and also as a means of causing the grain to flow inward and outward in passing from one disk to the next. Around the perforated jacket is arranged a closed body or jacket, leaving between the two a space of about one inch, more or less, into which air is freely admitted through openings at the lower end. This space is designed to receive dust and light impurities which may escape through the perforated jacket, and it communicates at the top, through a suitable opening, with a casing containing a suction-fan, applied to the upper end of the shaft, or otherwise suitably driven. Grain is introduced into the machine through a feed-spout, at the top, and is delivered through a spout, extending downward from the interior. The delivery-spout discharges into an air flue or duct, the lower end of which is open, while the upper end communicates with the fan case or chamber. The upper end of the suction-flue communicates at one side with a top of a hopper or receptacle, closed at the lower end by a gravitating valve. The upper end of this hopper also communicates by an independent passage, with the atmosphere, this passage being provided with a valve, by which it may be wholly or partially closed. The operation of the machine is as follows: The parts being set in motion, a strong draft is created upward through the space surrounding the perforated jacket, and also through the duct with which the grain-delivery spout connects, as well as through a passage from the top of the hopper. The grain, being introduced at the top, encounters the upper surfaces of the top flange and disk. It is carried outward by the motion of the disk in all directions, and passes over the edge of the disk between its upper surface and the under surface of the flange above, and thence downward past the edge of the disk toward the flange and disk next below. As the grain passes the periphery of the disk it is acted upon by the depending studs, which have the effect of throwing it toward the center and of equalizing its distribution. Pursuing its downward course the grain travels alternately inward and outward, being thrown inward by the upper surfaces of the flanges, and outward by the upper surfaces of the disks, so as to pass downward beneath the flanges.

The fourth invention is a

WHEAT CLEANER.

This invention was patented to Solomon Bernheisel, of Green Park, Pennsylvania, is numbered 309,684, and is dated December 23, 1884. It relates to devices used for scouring and polishing grain; and it has for its object to thoroughly clean the grain from its outer skin and from smut or other substance that may be stuck thereon, and to clean out the groove in each kernel of grain. This device consists of an external drum, made in halves, divided on a longitudinal plane, and mounted to revolve in the frame on hollow trunnions, and a cylinder, also journaled in the frame to revolve

in the drum. Each half of the drum comprises three staves, filled with brushes, a staff, of wire cloth, and a semi-cylindrical shell. Each of the brush staves is attached to the drum heads by means of two binding screws, which hug it toward the heads, and a set screw, which pushes it away from the heads. By this means each staff of brushes may be canted a little to one side or the other, or it may be set as a chord to the circle of the drum, and when the brushes become worn they may be set up again to the work by unscrewing the set screws and screwing in the binding screws. The staff of wire cloth is to discharge into chamber the dust which is scoured from the grain. The shell is to keep the grain in among the scouring blades of the disks. The inner cylinder comprises a series of staves, armed with brushes alternating with another series of staves, armed with conveyer wings and a series of disks, armed with diagonal blades. The brush staves are supported between horns of the cylinder heads, and are adjustably mounted by means of screws. The brushes are set to nearly touch the brushes on the outer cylinder, and they act together to polish the grain. The conveyer-wings are all set in one direction, diagonal to the line of the staves, and they act by slow impulses, like a broken-threaded screw, to work the grain from the end of the machine beneath the inlet, or from the shell to the outlet. The blades of each disk stand diagonally in one direction; but the blades of alternate disks slant in opposite directions, to beat and rub the grain right and left to thoroughly scour it. The grain enters the machine through any sort of a hopper or pipe, and is first acted on by the blades. Then as more grain entering forces along that already in, it comes in between the two sets of brushes, where it is further scoured and polished as it is worked along by the conveyer-wings, and is finally discharged through the lower end of a pipe, which is connected at its upper end with an exhaust blower, to withdraw what little dust there may remain not already discharged through the wire cloth staves. The cylinder and shell, both revolving in the same direction, one faster than the other, have a tendency to act on both sides of each kernel of grain at the same time, and the drum being armed with yielding brushes effects a more thorough scouring than any rigid fixtures on the drum can do. Even the creases in the grain are cleaned out in practical work.

The fifth invention is a

CENTRIFUGAL FLOUR-BOLT.

This invention was patented to August Heine, of Silver Creek, N. Y., is numbered 309,716 and is dated Dec. 23, 1884. It relates to an improvement in that class of flour-bolts in which a rotating bolting-reel and rotating beaters within the reel are employed, and the object is to construct the reel that the inner side of the bolting-surface shall be as little obstructed as possible, and to reduce the disintegrating action of the reel, and to provide simple and efficient means for keeping the meshes of the bolting-cloth clear. The ribs are attached by their ends to the heads at the end of the reel, near the periphery thereof, in a well-known manner, and are made inclined on their outer sides, so as to present their narrow edges to the material escaping from the beaters, whereby the material, which is driven by the beaters against the ribs, is deflected outwardly toward the bolting-cloth. At the same time the quantity of material which comes in contact with the ribs is greatly reduced by the tapering cross-section of the same, thereby reducing the disintegration of material by being thrown against the ribs. The inner sides are arranged tangential to a circle drawn concentric with the axis of rotation of the beaters, so as not to deflect any of the material inwardly or away from the bolting

cloth. Standards are secured to the outer sides of the ribs, and rings are secured to the outer ends of the standards, supporting said ribs to support the bolting-cloth which is stretched over the rings. The latter are secured to the standards, and the standards to the ribs by bolts, which pass through these parts. The standards are provided with base-pieces, fitting against the outer inclined sides of the ribs, and having end flanges, bearing against the edges of the ribs, whereby the standards are firmly supported on the ribs. The standards support the rings and bolting-cloth at such a distance from the outer sides of the ribs that the space between the ribs and the bolting-cloth is not liable to become obstructed by accumulated material, thereby retaining the entire inner side of the bolting-surface in a free and unobstructed condition. A rotating clear-shaft is arranged within the casing, outside of the reel and parallel therewith. Light balls are attached to this shaft by strings, straps, or flexible connections of such length that the balls will impinge against the bolting-cloth in rotating with the shaft and jar the cloth with sufficient force to dislodge any material which may adhere to the same. The balls are preferably made of rubber and hollow, and are attached to the strings by swiveling connections. The latter are composed of balls adapted to be passed through openings in the rubber balls and wire eyes, to the stems of which they are secured. The rubber balls are free to turn on the stems of the wire eyes. The rotation of the shaft causes the balls to impinge against the bolting-cloth and to rebound therefrom immediately after the blow is delivered, whereby the cloth is subjected to a succession of light blows, which jar the cloth and dislodge the material from the meshes without wiping the cloth, which would tend to further rub the material into the meshes of the cloth and wear the latter rapidly.

The sixth invention is a

BOLTING-REEL.

This invention was patented to Christian N. Smith, of Dayton, Ohio, is numbered 309,744, and is dated December 23, 1884. It has relation to bolting-reels commonly known as "centrifugal flour-bolts," and classed under the head of "bran-dusters" as "beaters;" and it consists in the construction and novel arrangement of devices, the bolting-cylinder is composed of two heads, connected by stay bolts, rods, or bars, and which is covered by bolting-cloth of suitable mesh, supported by suitable rings. The cylinder-frame is preferably made in sections secured to each other and to the heads. The cylinder-head of the feed end of the cylinder is provided with a hollow journal, and the head at the tail end of the bolting-cylinder is provided with a similar hollow journal. The rotating beaters are arranged in the cylinder, and are secured to rings. This shaft passes through the hollow journals, and is supported in suitable bearings. The cylinder is entirely level from the feed to the tail end, and the twist given the wheel causes the material to pass through it. In passing through the cylinder from the head to the tail the material is thrown by the beaters against the bolting-cloth of the cylinder, and thereby separated, the flour or fine and heavy material passing through the meshes of the bolting-cloth into the surrounding inclosed space, while the lighter particles remain in the bolting cylinder and finally arrive at the tail, which is provided with radial ribs and a central discharge-opening. Either or any of these parts may be varied without departing from the invention, the main feature of which is a hollow metal cone, secured to the shaft, and having its small end toward the head of the reel. This cone is located near the discharge end of the reel, and its base nearly fills the space between the beaters. The object of this

cone is to keep the material from the center of the reel, there being a tendency in the ordinary reels to create a draft along the shaft. This the cone defeats, and by its use about double the capacity of the ordinary centrifugal reel is secured, so the inventor states, at the same time preventing flour from passing through the center of the reel and being discharged with the offal.

MAKING EMPLOYEES PARTNERS.

In an article in the Fortnightly Review, Charles Waring advocates what he calls Industrial Partnership as a means of reconciling labor and capital. Arbitration has been tried as a means of allaying this hostility, but the discouraging fact forces itself into notice that it has failed of wide acceptance.

Discouraged by the failure of arbitration and co operation to reconcile the interests of capital and labor, Mr. Waring hopes to see the solution of this problem worked out by an extensive adoption of the plan of making employes partners, at least to the extent of sharing profits. He sketches at some length a plan by which this could be done. He would give workmen a deliberative (and that would be fatal) but not an executive voice in the management of enterprises in which industrial partnership is to be tried. The workmen are to be paid, irrespective of profit or loss, a certain minimum sum known as "subsistence wages." If at the end of the year it appears that no profit had been made, no further dividend would be paid the workmen. And if the capital is fatally impaired the company can go into bankruptcy. The profit attending the working of the business would be distributed as follows: (1) A certain percentage as provision for workmen and their wives in old age, (2) A certain percentage as a reserve fund for insurance against trade risks, (3) The remaining profits to be divided in the proportion of so much to the foreman, clerks and head employes by way of bonus, and the remainder to be distributed among the workmen as might be agreed. It will be seen that the agreement here suggested is capable of every variety of modification consistent with the principle involved in it.

This is a good plan on paper, remarks the Chicago Tribune, and all that is needed to make it perfect is men good enough to

work it. A number of familiar experiments, to which Mr. Waring alludes, have been attempted in this direction—notably those by M. LeClaire and M. Goding, in France, and in England Messrs. Briggs, in their collieries, and Fox, Head & Co., and in this country by a well known firm of carriage manufacturers in New York city. But the historical fact is that, though the idea of industrial partnership has long been familiar, it makes as little headway as arbitration or co-operative production. Ninety-nine per cent. of all the experiments have fallen into ruins. One of the English firms who made the most thorough trial had to abandon it, for the reason that they found their employes lacked the qualities of patience, discipline and faithfulness under which alone it could be a success. If the workingmen cannot unite and harmonize among themselves for co operative manufacturing and production, is that not an evidence that they have not yet sufficiently developed the mental and moral qualities needed for successful association? If they are not advanced so far as to succeed in co-operative production, we fear they will be impracticable as industrial partners with capital. The analogies of history suggest that the civilization of labor must come from within itself, and not come down to it from above.

EDUCATION IN THE EAST.

Uncle James, just arrived from the West for a visit (to his little niece): "Well, Emily, and how are you coming on at school?"

Emily (little eight-year old Boston girl): "Nicely, uncle."

Uncle James: "I suppose you can read and write and spell with the best of 'em?"

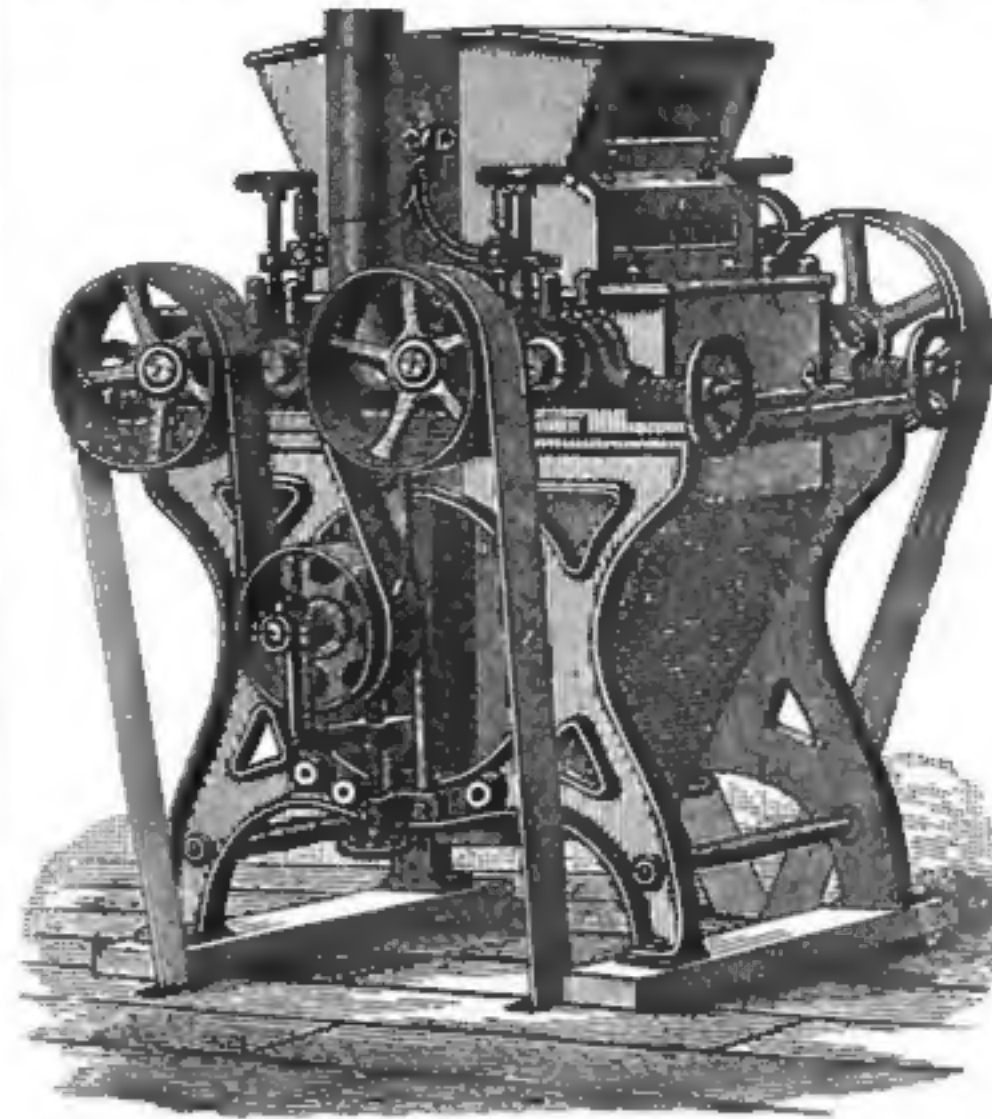
Emily: "Oh, my, yes, uncle. I study mental philosophy and the science of languages, and on Tuesday I'm to prepare a treatise on Psychology, and another one on Friday on Methods of Thought; and twice a week we have a lesson in Ethics of Sex, and here is an article which I am to read to-morrow called The Brazen Period, and —"

Mamma (entering the room): "There Emily, dear, little children should be seen not heard, and besides your uncle James must be very tired after his long journey."

Uncle James looked tired.

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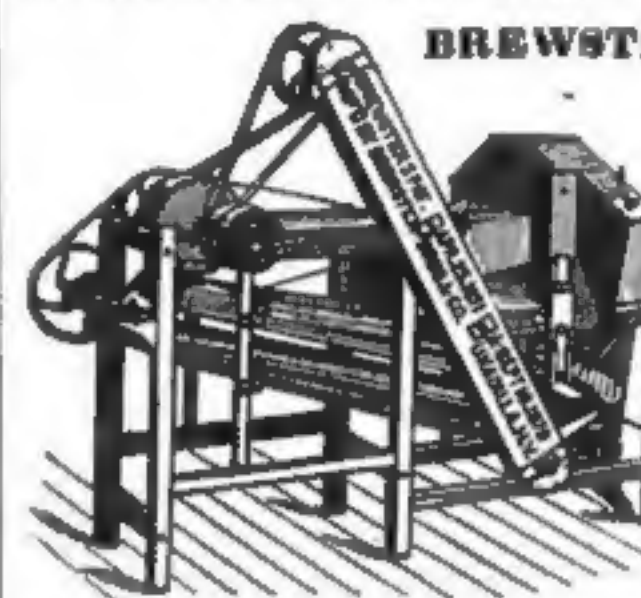
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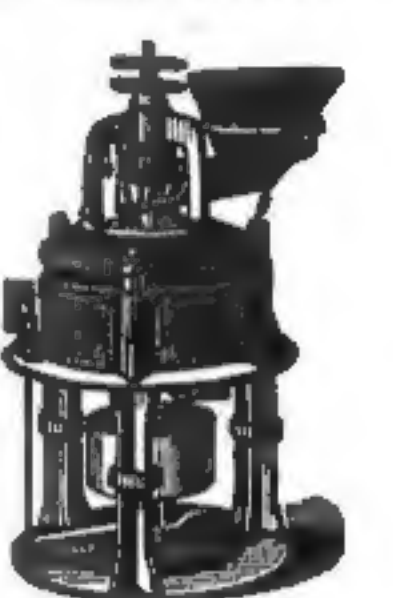
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CONSULT YOUR ENGINEER.

THERE is a fascination, says the Boston Journal of Commerce, attached to a high-sounding prefix or affix which often serves to enhance to an undue extent, estimates of the knowledge possessed by the bearer of the name to which they are applied. The nervous patient will feel decidedly improved after the doctor has been in, even if he has taken none of his medicine, and the relief from responsibility and anxiety which attend the transfer of a case to a professional man are worth to those who can afford it, the price of his services, notwithstanding the fact that the application of a little good sense and some simple home remedy would have completely mastered the trouble.

This same principle obtains to a large extent in manufacturing operations. Some changes are to be made about a mill in reference to its power. In nine cases out of ten nothing will be said to the engineer under whose management the power has been successfully run for years, the man who, of all others, should have suggestions for the change or modification of his particular plant at his tongue's end, but some man who has never seen the plant before, but who has a knowledge of scientific principles, is called in and paid a price for two or three day's work which would pay the engineer's salary for a month. A case recently came to our knowledge where changes or additions were to be made in a plant. The superintendent talked it over with the engineer, who was an intelligent fellow, told him what they wished to accomplish, and the engineer got out his books and slate and went to figuring. He surprised the superintendent by turning in a comprehensive and intelligent report, but he had no M. E., C. E., to his name, and the report had not cost the superintendent enough, so he called in a learned professor, stated the premises and what was to be accomplished. The professor looked very knowing, made his notes and went away. The next day he sent in his report with a bill for fifty dollars, which was paid without a murmur. The engineer got nothing for his figures, though there was not enough difference in the reports to make a note of, except that the engineer's furnished information that the professor's did not touch upon; in other words, was more comprehensive. Engineers as a class are not the lumpers which some of their superior officers imagine them to be. We have a large personal acquaintance among the New England engineers, and we know that many of them have ideas which, if carried out upon the machinery under their charge, would produce cheaper or more effective work. Superintendents, agents and proprietors will not lose anything by treating their engineers as intelligent men. Talk to them familiarly about matters upon which they are employed; give them a chance to make their suggestions; you need not necessarily act upon them. Some of them have very cranky ideas, but a man who is sharp enough to know a good point when he sees it, can pick up one occasionally by consulting with his engineer.

BOILER CORROSION.

Internal corrosion is sometimes one of the worst things the steam user has to contend with, says the Locomotive. With certain kinds of water, it is an insidious foe, and is apt to do great damage to the shell-plates before its presence is suspected, or the extent of its action realized. The primary causes of this action are many, and sometimes

quite difficult to determine. The nature of the impurities in the feed-water, and the treatment which the boiler receives at the hands of its attendants, are, in general, the potent factors of corrosion. The character of the plates also has much to do with the nature of the action. Pitting is one form of internal corrosion which is most easily discovered by inspection, and regarding the nature of which there has been a vast amount of controversy. Some attribute it to galvanic action, some to the action of the feed-water, while others attribute it to various other causes, among which some sort of gas theory is usually prominent. As a matter of fact, in this as other things, a variety of different causes may operate, either separately or conjointly, to produce the same result; hence the diversity of opinion as to its causes, and the failure of many of the remedies which have been suggested as specifics for the prevention of the trouble.

In many cases pitting has been traced to galvanic action, and remedies for this have cured the trouble. Galvanic action seems most liable to occur, where grease or some fatty acid finds its way into the boiler through brass tubes, as where a surface condenser is used. The fatty acid attacks the brass and carries portions of it into a boiler, and it adheres to the shell and tubes. Under the patches so formed pitting sometimes goes on quite rapidly. The remedy in this case is obvious. But the majority of cases of pitting in land boilers arises from an entirely different cause. Paradoxical as it may seem, the feed-water may sometimes be so pure that it causes the trouble. Where water containing so few impurities that it may be said to be acid, is used in boilers, they require a certain line of treatment, especially when they are not in use, or they will be most certainly badly pitted in a short time. Boilers used for heating purposes are especially liable to be so attacked when out of use during warm weather. Among such boilers, unless proper care is exercised in "laying them up," pitting and corrosion is the rule, and sound boilers are the exception. This class of boilers generally wear out faster, while standing idle, than they do when in use. The proper steps to be taken to preserve them uninjured can most easily and cheaply be learned from some experienced boiler-maker. Location has much to do with the matter, and it is impossible to give any hard and fast rule for their cure which shall apply to all cases.

There is a peculiar kind of corrosion which sometimes occurs beneath patches of incrustation, which is very apt to escape anything but the most careful scrutiny, and often produces serious results before its presence is suspected. Generally, a coating of incrustation is regarded as a measurable protection against corrosion, but in the case we are speaking of, from some peculiarity in the composition of the feed-water, it seems to invite it. The remedy can only be prescribed after a careful examination of all the circumstances by an experienced inspector, and sometimes an analysis of the water is necessary to point out a remedy. We have known cases of this kind when the boiler shell has been eaten entirely through before the trouble was suspected.

WATER POWER AND OUR FORESTS.

The relation of our water power to the forests is very intimate, and has been for years a matter of investigation, in view of the irregularity and decline of the one with the destruction of the forests. There may not have been proven to be an aggregate decrease of rainfall as forests have disappeared, but the retention of the water, and its distribution, has been so affected that streams that formerly gave steady and reliable power are now alternately dry or flooded. In speaking of the disastrous results of for-

est fires, the Boston Journal of Commerce calls public attention to the importance of this matter, especially to New England, where more than 22 per cent. of all the water wheels of the country are found. In 1880 Massachusetts had 3,046 such wheels, while those of New York and Pennsylvania were respectively 9,752 and 7,075. In Massachusetts 44.67 per cent. of the power used in her manufactures is water. The latter state has given this problem of the forest connection with this power a large attention, and has made attempts at legislative action. An exemption was proposed of forest lands from taxation, but was opposed on the ground that it would be equivalent to a bounty on certain lands that would be held as a recourse when the markets were favorable, and throw an undue burden on the others. A forest commission was finally appointed to secure through the state census supplementary data to that of the national of 1879. The growing importance of this subject renders it essential that some intelligent plan be adopted for the preservation of our forests.

* * An open letter on "Natural Gas Wells," in the Century, contains the following: "The products of natural gas are numerous. The most important thus far are lamp or carbon black and carbon points for the electric light. There are ten carbon-black works in operation, making 3,000 pounds of black per day. At a remote point in Armstrong county, Pa., a Boston firm has large works, locally known as 'the mystery,' on account of the secrecy with which it is conducted. Here they make the black, and it is supposed coloring matter also, from the gas. At Stuartson furnace, in the same county, is another 'works' where the carbon points are made. Both these works are guarded, and a stranger is not permitted on the premises. A number of persons are experimenting with the gas, with as many different objects in view. It is impossible to learn what has been accomplished, as they are quick to see the advantage of keeping secret any discovery they may have made. What the future of this wonderful fuel is would be difficult to foretell. Natural gas springs are known to exist in many parts of the United States. This would seem to indicate a wide distribution of it. In August last a large well was struck at Crestline, O., which may open a vast territory. Where gas may or may not be found can only be determined by the drill. How far it may influence the manufacturing interests of the years to come depends upon its supply.

* * A. T. Elliot, in the American Entomologist, gives the following hints for the destruction of weevils: Adjacent to my office is a warehouse filled with wheat. This spring the grain weevils therein commenced to migrate and infested my premises. We therefore sprinkled some bubach, or insect powder over the grain, and swept the weevils up literally by the quart. Those which migrated to my office were also treated with a sprinkling, and it cut short their earthly career. I am convinced that a judicious use of this powder on board each grain ship would save an immense amount of loss. I have seen it used in one of the largest mills in the State, and it brought cockroaches out in quantities which astonished even the miller, who little thought he had so many on his premises. A clergyman, a friend of mine, who cannot sleep if a mosquito is within a mile of him, tells me he has only to put a little powder on some burning paper in his room, and there is "perfect peace."

* * In a recent number of the Journal de Pharmacie et de Chimie, Dr. E. Richard discusses the dangers due to an escape of coal gas from the mains through the soil.

The poisonous effects of carbonic oxide are said to be very distinct at 0.4 per cent. Exposure to such a mixture is fatal in from thirty to sixty minutes. As coal gas contains about ten per cent. of carbonic oxide, the presence of such gas in the proportion of four to six per cent. will become fatal. When coal gas traverses a layer of soil before entering house, the danger is greatest, since it is then deodorized, and its presence may remain undetected. Dr. Richard omits, however, to state for how long coal gas, in the proportion he indicates, must be inhaled before it produces fatal consequences; for it does not follow that because a certain quantity of pure carbonic oxide is poisonous, a like result is produced by the same when diluted in a considerable bulk of coal gas. It is within the experience of most gas managers that men have inhaled coal gas in far greater proportions, for a limited time, without experiencing other than temporary bad effects.

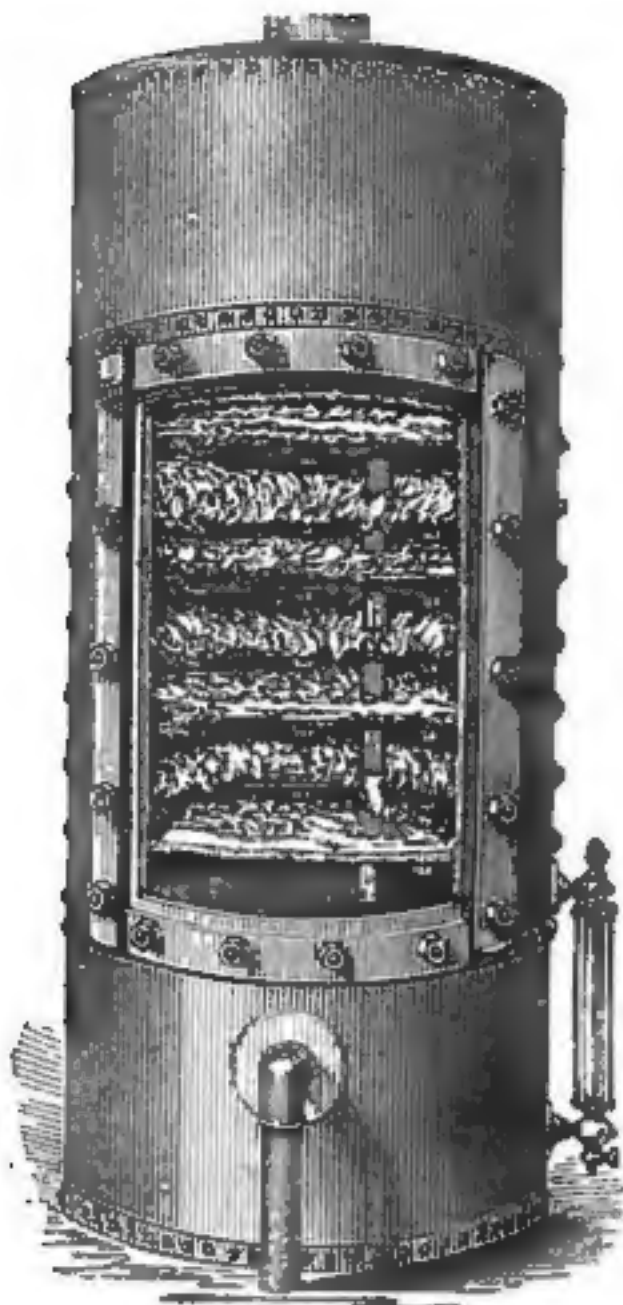
* * It always pays to have the pipes conveying steam covered by non-conducting material, says the American Engineer. Usually the saving of fuel in six months is equal to the first cost of the whole job. The best non-conducting material, too, is the cheapest. If these facts are generally understood, as they ought to be, they are certainly not kept in mind and put into practice sufficiently. To estimate the subcellars in business-houses where steam pipes, traversing from one end to the other, waste tons of coal per month needlessly in radiation, at 50 per cent. of the total number is not extravagant, if our largest cities form a fair standard for judgment. Many other glaring examples might be cited, but this is a matter in which the fault is so common that to give examples in reality weakens the case, as it implies an intimation that they are necessary, and that the defect is not known to each engineer in his own practice and experienced by him in his immediate surroundings. Capitalists, business men and landlords do not, however, yet seem to have conceived their traditional and enlightened self-interest in this matter.

* * Professor R. H. Thurston says that in well designed machinery, a bearing is usually composed of a softer metal than the journal which it supports; it therefore takes the wear, and if the extent of rubbing surface is small the journal is merely "smoothed up," while the bearing wears down. If the surface is too small, the bearing may be abraded and "cut," and both it and the journal rapidly injured. If, however, the surface under pressure does not cut, wear takes place slowly, and without excessive waste by friction. Every bearing surface, if not abraded, will, whether fitted or not, wear under heavy pressure, but with decreasing rapidity, until all parts sustain a certain intensity of pressure, when the rate of wear becomes a minimum.

* * The commissioner of patents having made a request that the public contribute small working models of machines for exhibition at the New Orleans Exposition, an Ohio man forwarded to the Department three grindstones weighing about 2,000 lbs. each, and was indignant at the refusal of his contributions.

* * An oil for belting is recommended, which consists of nine parts linseed oil, and four parts litharge, ground in water. These, boiled to a plastic consistency, and then liquified by an addition of turpentine, furnish an oil which possesses, it is said, many admirable qualities.

* * A motor driven by small charges of gun-cotton is an English novelty. It is said to be applicable wherever small powers are required.



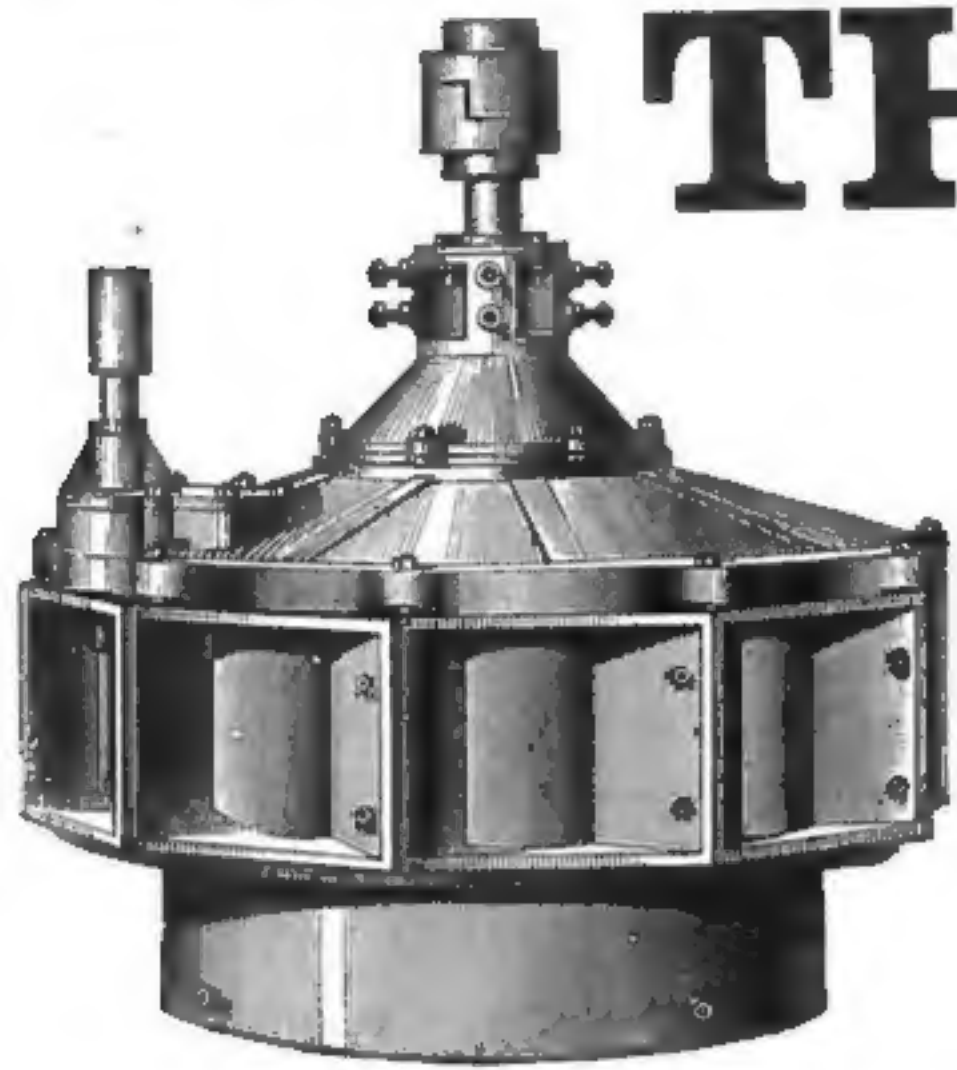
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PERCENTAGE OF EFFICIENCY.

	Full Gate.	¾ Water.	½ Water.	¼ Water.
24 Inch Wheel.....	.8486	.8416	.8302	.8002
24 Inch Wheel.....	.8306	.7910	.7700	.7003
24 Inch Wheel.....	.8078	.7878	.7375	.6796
30 Inch Wheel.....	.8000	.8011	.7814	.6860

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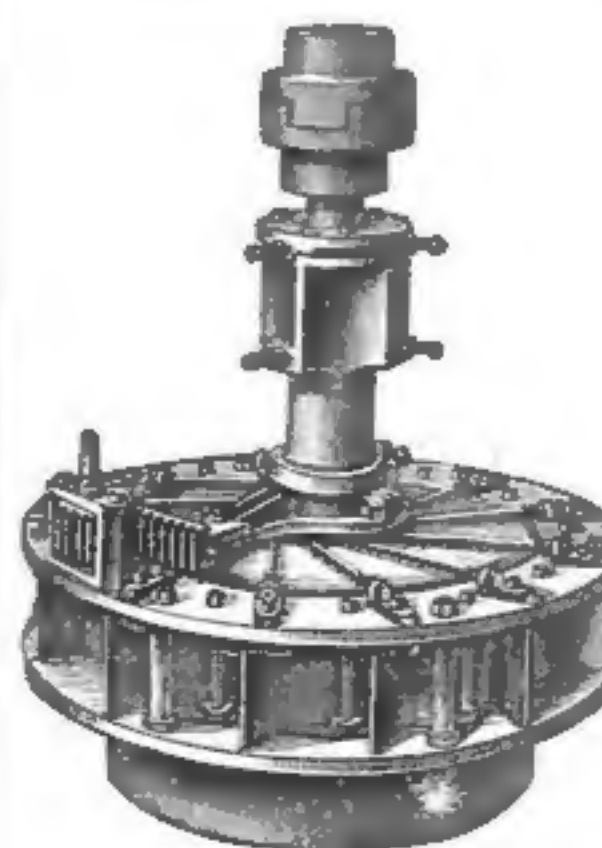
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HOW THEY SWORE OFF.

The Geo. T. Smith Middlings Purifier Company gave its customary annual dinner on New Year's evening to its traveling salesmen and principal employees at the Hibbard House under the direction of Major Clark. To say that the affair was elaborate and that it fully met the expectations and desires of those most anxious for its success, feebly expresses the facts of the case, says the Jackson, Mich., *Patriot*.

The menu embraced all that was desirable on such occasions and from its exhaustiveness one would judge that no one was more familiar with the wants of a critical and habitually well-fed company than Major Clark. Everything was prepared in the most beautiful and appropriate style, the wine was of the best brands and flowed as free as water, thanks to the liberal and congenial officers of the Smith Middlings Purifier Company and the efficient manner in which their directions were carried forth.

There were between forty and fifty plates laid and all were occupied and enjoyed. John E. Winn, the youngest representative of the firm, was selected to present to Mr. Geo. Sherwood, the superintendent, in behalf of the company, a beautiful and expensive Elgin watch as a token of the latter's appreciation of Mr. Sherwood's valuable services and faithfulness and of the economical manner in which he had administered the affairs of his department.

Mr. Sherwood was completely surprised and almost overcome by his emotions, but arose to his feet, tendered thanks and proposed a toast to the President and directors of the Middlings Purifier Company, to which Col. Rodney Mason responded in an eloquent and entertaining speech. He drew a graphic picture of the mills of our fathers and the improvements wrought by the introduction of the wonderful purifier. To Geo. T. Smith more than any other one man in this or any other country, was due the honor of the grand achievements found in the milling of the present. Col. Mason recited the most familiar difficulties the Purifier Company had in the early days of its history, the prejudice that existed in the minds of millers against improvements, and what they styled "new fangled things" and the great revolution which had been wrought. Those who formerly considered Mr. Smith a crank and his invention a "clap-trap," now blessed him and it as benefactors of their class. In the course of his congratulations to Mr. Sherwood, the speaker said: "I also have been a recipient of the generosity of the company we represent, but my present was a bigger thing than a watch—it was a clock—and I feel that my gratitude is as much greater than Mr. Sherwood's as my clock is greater than his watch. While this is a very fine clock and of great intrinsic value, such value has no comparison to its value to me as an expression of the satisfaction of this company with my services in the past, and it places me in a new position in my relations with this company. Heretofore I have been as an attorney to his client, hereafter our relationship will be increased by that as of a friend to a friend, and feeling my interest in their success thus increased, as in the past my efforts to serve have been great, in the future they shall be greater, and what I have to do I shall do with all the might within me. This is no ordinary clock. It is no cuckoo clock, nor was it made at Waterbury, Conn. It has chimes that announce each quarter hour and a gong which sounds with cathedral tone the knell of the dying hours, and as its sweet music fades away, each hour my memory of the kind givers shall be aroused and my energies stirred to new activity to promote their success."

Col. Mason himself is entitled to no small credit for the wonderful change of sentiment in regard to the machines manufactured by the Smith company, for in the opinions he advanced and the obstinate resistance he met he no little contributed to the advancement of the machine. It is fair, however, to record that Col. Mason's opinions were not written or his learned and thoughtful arguments hurled at courts by him for the purpose of provoking discussion, but were the calm and deliberate opinions of an attorney who had made a careful study of the principles involved in the invention for which he contended. Happily all these discussions have been determined by the courts to which they have been referred and the Geo. T. Smith Middlings Purifier Company's machine stands to day before the law as well as before the milling public as the only legitimate machine in this country for the purification of middlings. To say that Mr. Smith should thus have hit upon all the fundamental principles of a mid-

dlings purifier, but faintly expresses the astonishment and gratification of the milling fraternity.

As a representation of the interest American millers feel in the improvements engendered by the Geo. T. Smith Middlings Purifier and Centrifugal Reel, Mr. Jno. R. Reynolds, head miller for H. A. Hayden & Co., responded to the toast; "The American Millers." While paying tribute to the homely and faithful picture presented by Col. Mason, he gave his own experience in milling and the objections he had to overcome from the head miller in charge of the mills in which he was employed when the purifier was first presented, and recited the almost miraculous achievements accomplished by its introduction not only in the mills which he now superintends, but in all the intelligent milling world. Mr. Reynolds in part attributed the success of this company in holding its usual business in this exceptionally dull time to their readiness and generosity in adopting and applying all improvements to their machines—come from whatever source and cost what it may—until they had succeeded in offering to the trade an article which had no equal for the purposes for which intended, and added the old saying that that there is lots of room for trade on the top shelf, but none on the second or third below.

Hon. W. K. Gibson being called, responded in his usual happy way, referring to the former annual dinners which he had had the pleasure of attending, replied in a jocular way to the feeling remarks made by Col. Mason in thanking the company for the elegant clock presented him. Mr. Gibson said he had no cuckoo at his house, and he would consider it in order whenever the company thought proper to recognize him in that way. He referred to the advantages the city of Jackson derived from the company's business, the wonderful extent of it and its phenomenal growth in this country as well as abroad. Even now, when almost every other firm is complaining of hard times, reducing their capacity, curtailing their expenses and business—many of them closing their shops entirely—this company not only finds itself able to run to its full capacity, but finds it necessary to enlarge their works, increase their force and are behind their orders. He referred to a conversation he had had with one of the officers of the company, in which he learned of their large trade in Europe and the necessity they had found for detaining Mr. Myron W. Clark from the work he has so long and successfully been engaged in here, and sending him abroad to take a general supervision of their European trade. He supposed one reason why they selected this gentleman was because of his extreme modesty and inconsiderable proportions. He presumed the scheme of the company was to send some one who would not attract attention or speak except when spoken to. Mr. Gibson referred to the great improvement in the business since Geo. T. Smith took its management, and to the improvement in the appearance of the men he saw now at this dinner, as compared with former years; gave them their full share of credit for this condition of affairs, and congratulated the President and officers of the company, on the liberal policy which had surrounded them with such talent and ability.

Toasts were proposed and responded to by Clark, Colwell, Col. Dickey, Harmon, Winn and others, and at midnight the company dispersed, each and all delighted with the elegant and sumptuous entertainment received, and with redoubled resolutions to accomplish more in the year just born than was done in that just dead.

Notes from the Trade.

A joint stock company is being formed at Ipswich, Dakota, to build \$20,000 flour mill.

Ogilvie & Co. have shut down their flour mills in Winnipeg. They state that Minneapolis millers are now selling flour in Canada at less than the price of Canadian wheat.

At Sparta, Wis., Jan 2, J. L. Way's elevator at the Chicago & Northwestern Railroad station was burned. Loss, \$10,000.

A subscription paper is in circulation at Andover, Dakota, to raise a bonus of \$2,000 for a responsible party to build a 100 barrel flour mill at that place.

The Central elevator, at Dallas, Texas, was burned Friday evening, causing a loss of \$80,000. Two employees are known to have perished in the flames.

The flouring mill of W. W. Cargill & Bros., at Whalen, Minn., 15 miles from Rushford, was destroyed by fire. Three cars loaded with wheat, 275 barrels of flour and 3,000 bushels of wheat were also destroyed. The mill was valued at \$20,000; insurance \$16,000.

The Secretary of State of Missouri has issued a certificate of incorporation to the Regina Flour Mill Company, of St. Louis; capital, \$100,000,

one-half paid up. Incorporators, Louis Fusz, Geo. H. Becker, Geo. Bain and Paul A. Fusz, of St. Louis, and George W. Hill, of Freeburg, Ill.

The police notified the contractor of the addition to Milwaukee company's elevator at Mankato, Minn., to stop the work, it being on Main street, according to the city plat.

At Marthasville, Warren county, Mo., Dec. 24, the steam flouring mill of Christ Ahrensburg, was discovered to be on fire. All attempts to check the fire were futile. The entire structure was soon a mass of ruins. The property was valued by its owner at \$15,000, and insured in the Washington agency for \$9,250.

At Carmi, Ill., December 31, the mud-drum at the flour mill of Staley & Ziegler exploded, scalding the engineer, George Wohlhueter, about the face and arms in a terrible manner. It is feared his injuries will prove fatal. The damage to the mill is estimated at \$700.

Millers in the Northwest (Canada) territory are closing their flour mills, and report to the government that they are unable to compete with the Minnesota millers, who are now sending flour into Manitoba and the Northwest, and, after paying the duty of 50 cents per barrel, are selling at a lower figure than the wheat required to make a barrel of flour can be purchased for.

Advices from Fargo, D. T., Dec. 30, indicate that the Farmers' Union Elevator Company, now seeing their way clearer than ever before, have instructed all their agents, at 14 elevators, including the following stations, to buy all the wheat that is offered and fill the houses: Barnesville, Sabin, Glyndon, Hawley, Carman, Fisher's Landing, Angus, Warren, Argyle, Stephen, Minnesota; St. Thomas, Hamilton, Bathgate, Arvilla, D. T.

W. A. Newton & Co., a flouring mill firm of Sauk Rapids, have assigned to J. H. Senn. The firm consisted of W. A. Newton, formerly of the Anchor Mill, Minneapolis, and E. W. Truesdale. Liabilities, \$13,000, and no assets to speak of. Many farmers holding checks that could not be cashed are losers. They are indebted to the German-American bank of St. Cloud for \$3,000, C. B. Buckman for \$1,700, and J. F. Quinn for \$700.

At Omaha, Neb., December 31, Sackett & Preston, of Council Bluffs, general agents for the Buffalo brand of flour, made at Topeka, Kan., were indicted by the grand jury for adulterating the product with foreign and injurious substances. The Buffalo brand is a high-priced flour, and it is claimed Sackett & Preston not only adulterated it, but bought up old sacks from their customers and refilled with an inferior grade. The Topeka firm discovered the fraud, and testified to the facts before the grand jury. They have severed connection with the indicted men, and will bring a civil suit against them to recover damages.

Jacob Avery, owner of a small flouring mill near the village of Greenbush, Wis., eight miles west of Plymouth, while oiling the machinery of his mill had his clothing caught on a fast revolving horizontal shaft. He was rapidly whirled round and pounded against the floor with such violence that the body, when found, for he was alone at the time, was a shapeless mass. The limbs were broken and splintered, bones in many instances protruding from the mutilated body. The head was pounded into pulp. All his clothing except one boot was torn from his body. The deceased was fifty years of age and quite wealthy.

The Hoople steam roller flouring mill at Lake Centre, Minn., caught fire and was almost entirely consumed, nothing remaining but the shell of the building and part of the machinery on the first floor, which is badly damaged. By the prompt and untiring efforts of the hose companies and in spite of the piercing cold weather, the engine was saved with but little damage. The total value of the property was about \$16,000. The loss is estimated at \$10,000; insured in the following companies: The California, \$1,500; Springfield Fire and Marine, \$1,500; Connecticut Fire, \$1,500; Orient, \$1,500; American Fire \$1,500; Northern, \$1,000; Western, \$1,500; British, \$1,000.

Canadian millers are making a vigorous move to have the duty on American wheat lowered, so as to bring it to the same ratio as the duty on flour. The difference in duty now is equivalent to 17 cents on a barrel of flour, and as a result of this discrimination, combined with other causes, the Canadian mills are running only half time. A duty of from 75 cents to \$1 per barrel of flour, and an equitable schedule for regulating freight rates on grains, it was held, would afford the Ontario millers ample protection. Sir Leonard Tilley has promised that if the government could give the millers rates by any amendment to the traffic without injuring the trade of other provinces, it would be done.

The Cummer Engine Co. have just been awarded the contract for one of their Ballantine refrigerating machines, for the Heims Brewing Co., of East St. Louis, Ill., and for a 95-horse power en-

gine, with outfit complete, to be used in the flouring mill of Lee & Herrick, Crookston, Minn. Among the recent shipments of the Cummer Co. are two refrigerating machines to Joseph Hensler, of Newark, N. J.; a 350-horse power engine to Carlton, Foster & Co., of Oshkosh, Wis.; a 95-horse power engine to Edwin Groat, of Henderson, N. Y., and a 130-horse power engine to the Dominion Wadding Co., of Montreal, Canada. They report a rapid increase in their sales of the Jonathan Mills flour dresser and the Finch roll.

At Louisiana, Mo., December 30, the Louisiana elevator, situated on the river front at the foot of Kentucky street, was burned to the water's edge, and with it about 18,000 bushels of wheat. The building was owned by Irwin & Gamble and Mrs. W. A. McQuie, on which there was an insurance of \$3,000 in the Hartford, of Hartford, and \$500 on office furniture and bridge approach in the Continental, of New York. On grain owned by W. A. McQuie, \$350 in London Assurance. The bulk of the grain on storage, about 15,000 bushels, was the property of Excelsior Milling Company; insured for \$9,800 in the following companies: American Central, of St. Louis, \$2,800; City of London, \$2,500, and Connecticut, of Hartford, \$4,500. The origin of the fire is wrapped in mystery, as no lights of any kind were used in the building.

"Valley City is the largest primary wheat market in North Dakota," Inspector Smith, of the Northern Pacific Elevator Company is reported to have stated lately. To back up this statement it is only necessary to produce a few figures. Last season the number of wheat tickets issued by the Valley City elevator was 4,800; this season there have been nearly 8,000; which, multiplied by an average of 50 bushels per load, gives 400,000 bushels direct from elevator receipts thus far this season. The roller mills run 300 days in a year, and at a low estimate grind 100 barrels of flour per day, which amounts to 30,000 barrels. At 4½ bushels of wheat to the barrel this is equivalent to 135,000 bushels. Adding to the elevator receipts the total amounts to 535,000 bushels. Estimating 100,000 bushels—less than one-fourth of the crop—as not yet having reached market, and adding the same to the above figures, the grand total is 635,000 bushels.

At Olney, Ill., January 3, the largest failure in eight years occurred. The firm of S. C. Wilson & Co., composed of S. C. Wilson, D. F. Houser and A. E. Page, proprietors of the Butler Street Mills, by their attorneys, Messrs. Allen & Fritchey, made an assignment for the benefit of their creditors. A year ago a large elevator was built, and the complete roller process put in the mill at a great expense, and the failure of crops and the low stage of the flour market seriously embarrassed the firm. When the repairs were made the company gave their notes for \$3,500, and the first payment falling due last week, suit was brought in the United States Circuit Court, in Springfield, for \$1,000, by the Smith Purifier Company, of Jackson, Mich., which they were unable to meet, and were forced to assign. Their assets are about \$40,000; liabilities, \$22,000. Mr. P. Helman is appointed assignee, and if a compromise is effected the mill will resume business.

The capacity of the Duluth grain elevators by the middle of next fall, according to present indications will be 8,600,000 bushels, says the *Lake Superior News*. A meeting of the stockholders and directors of the Lake Superior Elevator Co. was held a few days ago in this city, and among other important business transacted it was decided to begin the construction, as soon as plans could be drawn, of a 1,500,000 bushel elevator. The house will, most likely, be situated on a line with B, C and D, with its western end resting on Rice's Point. Its cost will be somewhere about \$300,000, and it will be completed in season for the crop of 1885. We are informed by the president of the Union Improvement & Elevator Co., that that company will also build an elevator the coming season to have a capacity of 1,000,000 bushels. This house will be situated just west of E, and will be connected with it. It also is to be ready for the crop of 1885, and as is the case with the other houses of this system, will handle grain of the Manitoba road. The directory of these companies is composed of far sighted business men, and the necessity for increased capacity is apparent to all of them. A shipping business for the fall months of 1884 larger than Chicago's, with prospects for an almost unlimited stream of not only wheat but corn, demands great elevator capacity. The grain trade of Duluth has assumed immense proportions, and is growing faster than the grain men of this place imagined possible. The figures are old but will bear repeating; in round numbers three million bushels shipped in 1882, six million in 1883 and eleven million in 1884. There are but two grain shipping ports on the great lakes that outstrip us, and Duluth is crowding them hard.



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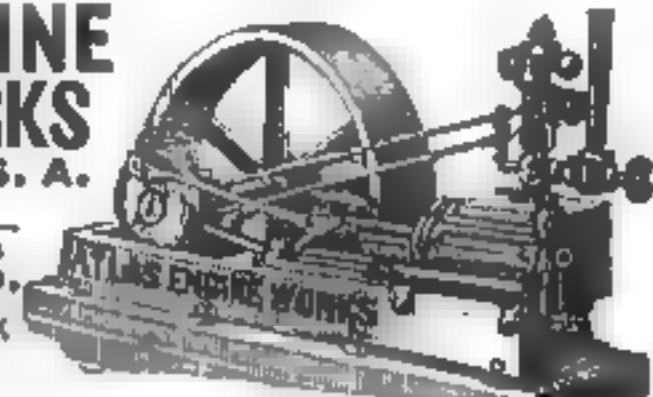
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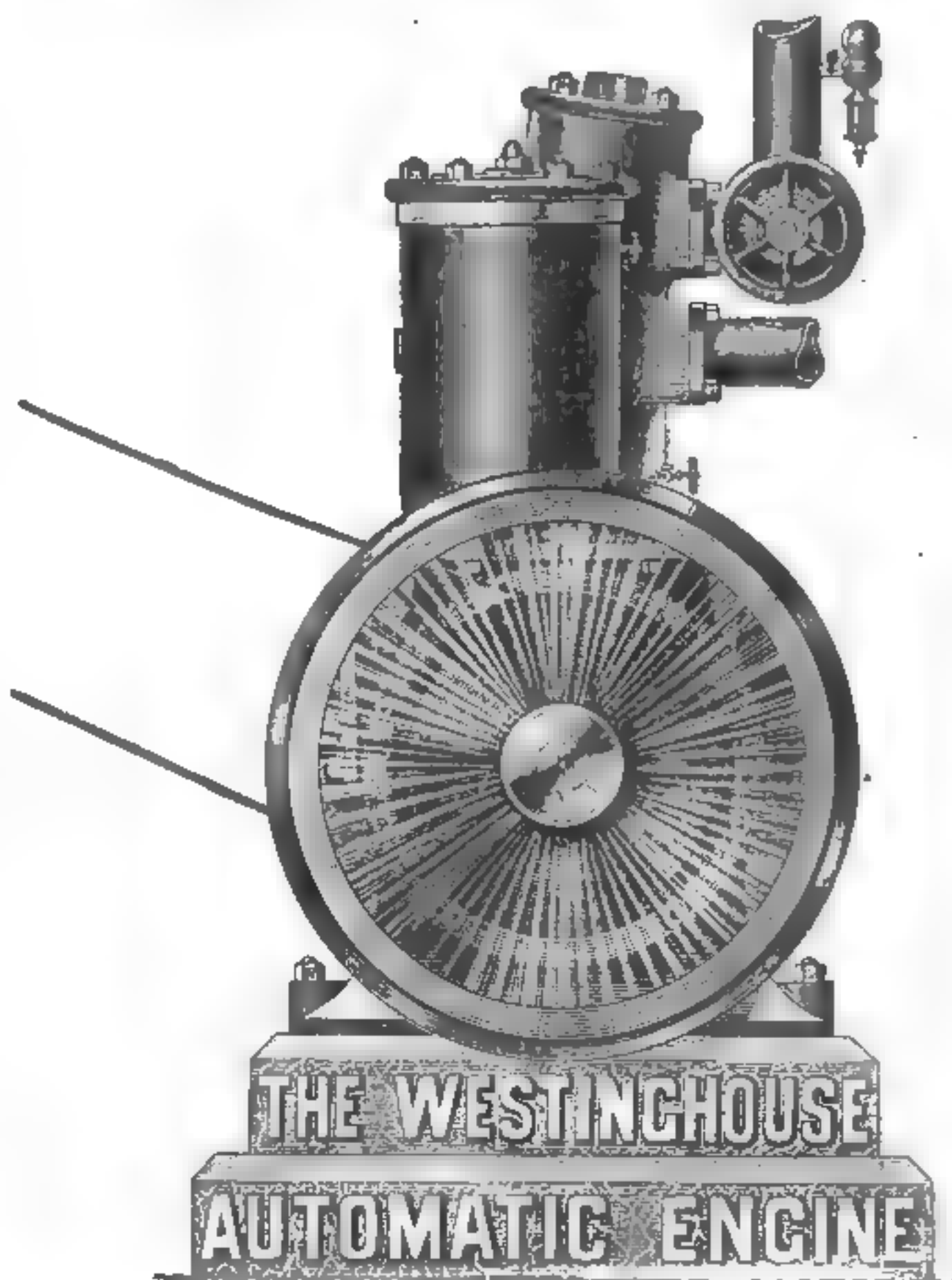
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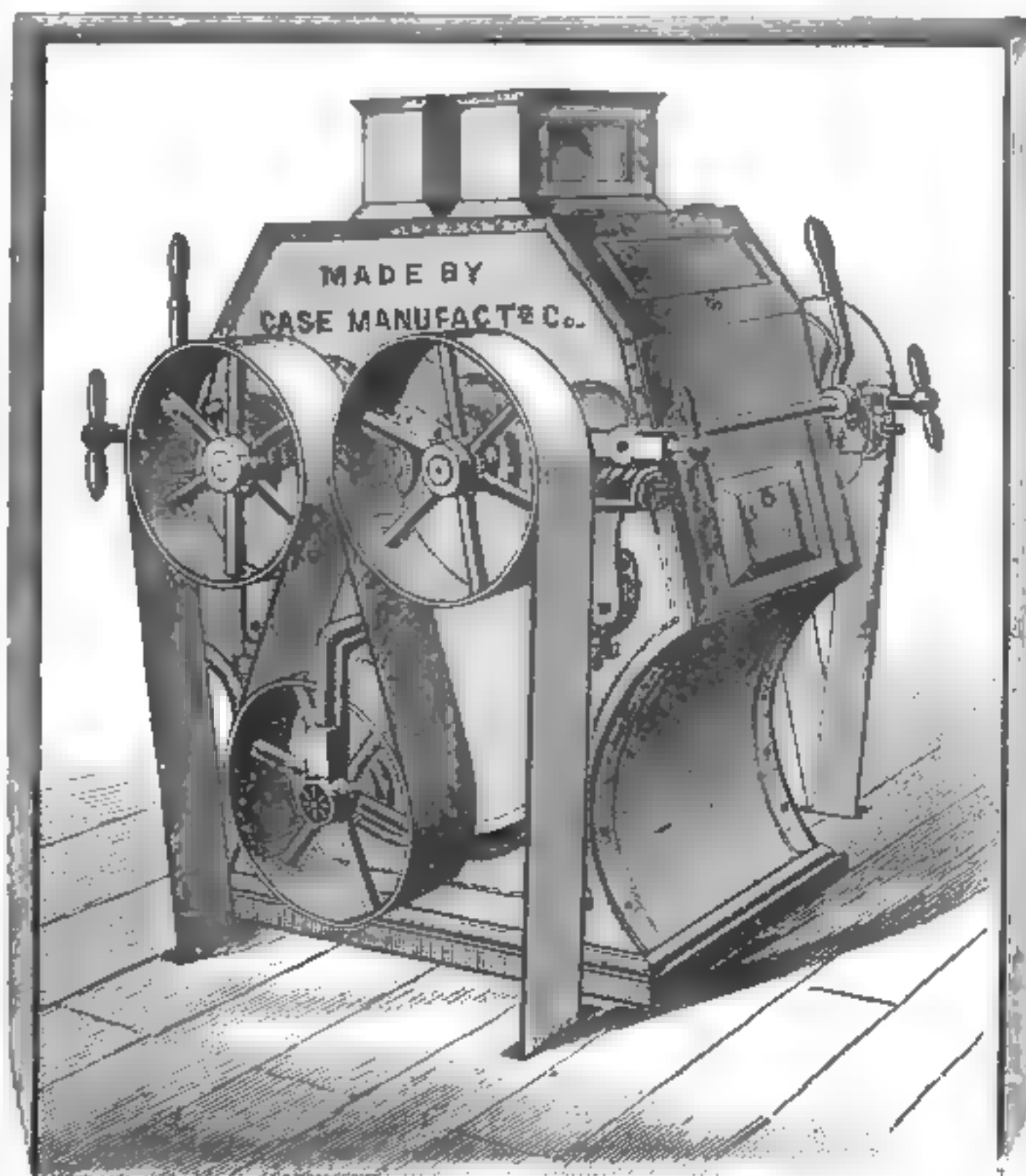
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GENTLEMEN: The mill you erected on the Full Roller System, for Mr. Harvey, of this place, is doing work which cannot be beat in America. The flour is gaining in reputation, and will continue. It is superior to other best brands sold here. When they run off from twelve, fifteen, and eighteen per cent. of low grade, when we make LESS THAN THREE PER CENT., and our feed is as clean as any mill can show.

Yours truly,

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MILLING IN NEW ZEALAND.

THE "Christchurch Press" recently had a description of the Canterbury flour mills at Ashburton, New Zealand, as follows: A representative of the journal visited the mill, and on his expressing a desire to see the interior of the building, the manager, Mr. D. H. Brown, readily assented, and volunteered some explanatory remarks in connection with the machinery. Mr. Brown, we are told, dipped his hand into a wheat cleaning machine and brought forth a mass of hair, sandstones, smut, and other deleterious substances as an illustration of what passes through these machines after the wheat has been cleaned, passed through a magnetic apparatus to remove all metallic substances, and mixed to produce a uniform quality of flour. It is subjected to gradual reduction by rollers of the well-known Stevens' type, passing through twenty-seven of these machines before it is finally reduced to marketable commodities. Here the millstones have been thrown out. In addition to the roller mills there are twelve silk dressing machines, a number of purifiers, scalp-ers, &c., all of the latest and most improved description, together with a patent automatic sack-filling apparatus. This latter machine is so constructed that it performs its work with great exactness, the only manual labor required being the placing of the mouth of a sack round a tube. The bag then fills with any quantity of flour, the machine stops of its own accord, and the sack remains in an upright position till the man in charge is ready to wheel it away. Mr. Brown is now fitting up an automatic machine for weighing the wheat in charges of one bushel each, the index plate of which will be in his private office and connected by an electric wire. As each charge falls over the first break of the "gradual reduction machine," it will be registered in the office, so that the manager can see at a glance the quantity ground in a given time. The flour-packing machine will be connected in the same way, and register each sack of flour as taken off, which will be a complete check on the produce of every bushel of wheat ground. To the uninitiated the agencies at work in the mill present a curious puzzle, but a few explanatory remarks from the genial manager soon conveys to one's mind a fairly clear conception of the present process of milling, and to one who has lived much in the provinces of the country, and knows the primitive methods adopted up to quite a recent date in dear old Conservative England, the system now in vogue in Mr. Turner's mill affords a striking illustration of the rapid progress this young colony is making. To give some idea of the extent of the business now being done at the Canterbury Flour Mills, it might be mentioned that the machinery is kept in continuous motion night and day (Sundays excepted), and that an average of from 150 to 180 sacks of flour is made every twenty-four hours. The whole of the machinery is driven by two turbines. There is an auxiliary motive power in the form of an Otto gas engine, occasionally used to drive the wheat cleaners. The granary affords storage room for 200,000 bushels of grain, and there is every facility for loading and unloading, a turntable and a line of rails allowing trucks to be brought from the main line immediately alongside the granary and stores. The correspondence in connection with the mill is done with an American type-writing machine, manipulated with great rapidity by Mr. Brown, while all the sacks and bags are branded on the premises with the aid of a printing press. As this mill is said to be

one of the finest in New Zealand, our readers will be able to compare it with our own ways of doing the business, and know how these things are done on the other side of the earth.

BREAD PRICES IN PARIS.

The following compilation of the prices of bread in Paris for a number of years, gives us a series of interesting data: In 1800 the four-pound loaf was sold at 90 centimes; in 1804 at 45c.; bread has never been as cheap as that since. In 1813 it was again 90c., in 1816 one franc. The statistics between 1813 and 1829 are not available, but towards the end of the latter year the price had risen to 1.10 franc. Between 1830 and 1847 the lowest was 50 and the highest 80c.; in 1847 it rose to 1.25 fr. and varied from 55 and 70c. between 1847 and 1860. From 1860 to 1862 the price of the four-pound loaf kept steadily at 80c. In Sept. 1862 the bread tax was abolished and the price decreased 10c. Between 1862 and 1869 it ranged between 60 and 80c. During the war of 1870 the average price was 1 fr., excepting the time of the siege of Paris, which has not been included. 1872 and 1873 had a range of prices between 70 and 85c. Since 1883 the price has again decreased. At present, bread is cheaper in Paris than it was in 1800. Since 1860 the price of the four-pound loaf has reached 1 fr. only once, ranging generally between 70 and 85c. The year 1860 inaugurated not only the abolition of the grain tariffs, but also witnessed a vast addition to the number of railroads, and the present facilities for importation from Austria, Russia and America, will prevent any excessive rise in the price of bread.

MILL FURNISHING ESTABLISHMENTS IN AUSTRIA.

The "Allgemeine Muehlen und Maschinen Industrie Zeitung" has drawn a rather desolate picture of the mill furnishing establishments in Austria, from which we translate the following: It is a delicate theme to compare our industry with those of Germany, England and America, where only men of ability supported by the necessary funds engage in mill furnishing; where every firm can demonstrate the amount of its credit by bank accounts, and where the knowledge of the name of such a bank enables every man to convince himself of the financial standing of the firm. All such establishments have permanent offices in various locations and advice and references can be obtained with ease. In these countries, mill furnishing has of late attained very large proportions, while we in Austria, have made but little progress. To illustrate this, we will quote from many well known cases. Here with us many men have taken to mill furnishing who had not the slightest ability for it. We have men who may have worked at but one machine in some shop, and who felt that they were destined to be great men, and therefore forthwith had a very elaborate sign painted and fastened to their house doors announcing themselves as mill furnishers and machinists. Then if the necessary money is on hand or can be loaned an elaborate catalogue is illustrated and printed which has the sign of a "firm" on its cover.

How is it such things can happen in Austria? The first cause is "pretension," a craze to appear more than circumstances permit; the second is, the ready support which such "retail firms" find from the manufacturers, home as well as foreign. A man who starts business in such a manner has seldom the necessary mercantile ability, and therefore he plods along between "passable and miserable" until the concern collapses, for none of these firms last any length of time.

As the largest number of manufacturing establishments in Austria are located in the

provinces, such bogus millwright's special design is deception, and if his elaborate catalogue falls into the hands of some distant country miller, the handsome outfit of the book inspires the confidence that it is issued by a reliable firm, and not the faintest shadow of suspicion enters the mind of such men. But if a provincial miller comes personally to Vienna to look up the owners of that beautiful catalogue, he may perhaps, after a patient search, find the so-called warehouse in some obscure street containing a few small samples in a small room, with the office in the kitchen. If he inquires for one or the other machine, he is told that that particular kind is not on hand; if he wants to see the factory, he is put off under some pretext; yes, it has been known that certain firms, in Vienna as well as in Bohemia, advertised largely, calling attention to the fact that they manufactured roller mills on a large scale, and yet their establishments were on paper only. Is it just to express surprise when millers who have been swindled in such a manner, have a poor opinion of milling specialists? Millers in foreign countries do not always purchase direct from the manufacturer and are treated fairly and honestly by agents; it is certainly unnecessary that millers should be humbugged here with us. If Austria would take an example of other countries in these matters it would be of untold advantage to all, miller as well as millwright.

NOTES.

After Jan. 1, the German railroads were to concede special rates on all shipments of grain and its products.

The Russian government proposes to purchase all the railroads of Russia. The present depressed state of the money market is favorable to the project.

The navigation on the Lower Danube had to be closed on Dec. 1 on account of the heavy masses of drift ice, and many floating cargoes of grain have been obliged to look for safe quarters. Expectations are, however, that any favorable change in the temperature, will enable the boats to reach their destination.

A National League against increasing the price of bread and meat has just been formed, under the auspices of the Political Economy Society. It has issued a programme, signed by M. Leon Say as President. The Committee points out that as France does not produce enough meat and corn to feed her population and foreign produce must be imported, any increase of duty must infallibly entail a rise in the price of these necessities. Instead, moreover, of benefitting the agricultural population, it will lead to a rise in the price of the implements and machines used by them, and raise the cost of living for the vast numbers employed in tilling the land, so that the cultivators' position would be rendered worse than ever. It would affect 25,000,000 of consumers, and is opposed to the vital interests of the whole population of France.

Some time since, the question of providing grain elevators, as in other ports, for accommodation of Belfast, Ireland, merchants was discussed. A deputation waited on the Harbor Board relative thereto, and urged the necessity of their erection, in order to enable them to discharge vessels with greater dispatch. The results of the Commissions' deliberations, says the *Millers' Gazette*, was the ordering of one of these elevators, which is now in process of being fitted up. It was constructed by Messrs. Stott, of Haslingden, and is known as a forty-ton Poulson's patent portable elevator, similar to those at present in use in the Liverpool docks. It is guaranteed to unload a steamer thirty-six feet deep, from hatchway to ship's bottom, and to deliver the grain at a height of six feet above the deck at the rail, which will enable the weighing to be performed as the discharge proceeds.

MR. MULLIN'S FUNERAL AND SPIRIT.

"As nigh as I am onto the facts, it was like this," observed Mr. Denis Hannifin, chairman of the Democratic County Central Committee, of Burleigh County, Dakota. And then Mr. Hannifin paused a long time, which was improved by the listeners, by taking what they could reach, while Mr.

Hannifin indulged himself in mighty muscular efforts to catch his breath. "Every man here as know'd the shirt on his back from seven dollars in the bank, know'd Pete Mullins," continued Mr. Hannifin, changing the style of introducing his story, probably with a view to greater dramatic effect at the climax.

"Him that had the scrap with the sojers over by the 'Seventh Cavalry Saloon.' I know'd him," remarked Judge Edgerly, punctuating the reminiscence with a variety of nods. "I was tending bar for Denis, and holding court at the same time."

"Ah, him," conceded Mr. Hannifin.

There was a vigorous puffing at short pipes as an intimation that the rest of the congregation confessed to more or less knowledge of the circumstances.

"It was a great battle," said Mr. Hannifin, drifting away from his subject again, as the details of the fight floated into his mind's eye. "There was Pete squirming around in the road, and trying to raise such a dust that they couldn't see him, and the sojers pegging away. There was seven of 'em, and Pete had laid six of 'em deuce-box before the seventh man got him."

"Aye!" interrupted the Judge, one of whose functions appeared to be the indorsing of Mr. Hannifin's mental notes. "Six sojers lay dead afore Pete went out. He was down onto his luck, or he'd got the seventh. His weep on miss'd fire."

"He telled me afterwards that the bar'l as missed fire wasn't loaded at all," observed Mr. Hannifin, quietly.

The congregation looked at each other, and then at Mr. Hannifin, in astonishment, quickly relieved by sudden devotion to the stove which made that instrument hiss sociably.

"Telled you afterwards, Denis!" exclaimed the Judge, who, in his capacity as indorser, felt that he had a right to examine the face of the note.

"Aye," replied Mr. Hannifin, with the careless air of a man who feels that his moral paper is at par in the market.

"But he was dead when we reached him, Denis, and we was there first," protested the Judge.

"Aye," assented Denis, italicising the concession with a long pause, more emphatic than any gesture.

"Go on, Denis," said the Judge, humbly.

"He telled me after the funer'l that the last bar'l warn't loaded," continued Mr. Hannifin, with a steady look into the wide open eyes of the Judge.

"It was a great funer'l," murmured the Judge, moving restlessly in his chair.

"Aye," assented Mr. Hannifin. "Funer'ls in Burleigh County now ain't ace-high to Pete's. Who was the county commissioner that Banigan shot for voting against the Ingine fer a herse?"

"Houlihan," replied the Judge.

"Aye, Houlihan," and Mr. Hannifin paused again. "The rest was willing, and two of them helped strap the stiff to the air-chamber."

"And the other helped hold him on after we struck the pace down by the 'Red Chimney,'" sighed the Judge. "The old Ingine don't go as fast to fires now as it used to go to funer'ls." And the Judge shook his head over the degeneracy of the times, casting an indignant glance at the young men around him, half buried in the smoke that rolled up to the sputtering lamps and hunted along the ceiling for a new place to stain.

"Them fellers is only splits and standoffs," remarked Mr. Hannifin, lazily contemplating the new generation, which shifted legs, and looked up at him apologetically for not having lived and been killed in the good old times.

"And they don't have no such lively rack-ets at the grave in these days," said the

Judge, quickly, interposing his good nature between Denis and the boys. "Do they Denis?"

"I don't know," replied Mr. Hannifin, with a sarcastic smile. "I don't go to funerals no more since they got up the faro-box with black curtains and the horses with dusters in their ears. The Engine was good enough for us that built the town, and I don't keep no cases for the new hearse."

"You was elected to say the sermon that day, Denis," continued the Judge.

"Being a Democrat," explained Mr. Hannifin, modestly disclaiming any personal claims to the office.

"Aye, being a Democrat," repeated the Judge. "Who was it run agin you, Denis, fer to say the sermon?"

"I can't remember, don't you?" retorted Mr. Hannifin, with some display of irritability.

"How would I? Didn't they throw me into the grave, and the Common Council on top of me?" protested the Judge, a trifle hot that Denis should have forgotten his service and sufferings on that day.

"Aye, so they did, Matt," said Mr. Hannifin, softened by the recollection. "And they was fer tipping the Engine on top of you all, only they had pity for Peg leg Baxter's big stomach. I was elected to say the sermon by 34 majority," and Mr. Hannifin shot a side glance at the boys who gazed upon him admiringly, "being a Democrat," he concluded, improving the opportunity to convey the political lesson.

"It was a good sermon," commented the Judge, relighting his pipe. "I didn't get out of the grave afore the soda card was draw'd, but I was in fer the turn."

"I jest telled 'em that the stiff was there when the fight begin'd, and he was there on the call," said Mr. Hannifin, partially aroused by the recollection of the only "theological deal" of his life. "And then I said if the other bar'l had gone off, our brother hadn't skinned his hand without finding a pair."

"That's what got me!" exclaimed the Judge, bringing his fist down on his knee. "Where'd you ketch it, Denis?"

"I hearn a preacher slanting a stiff up the flume down into Iowa, once, and he ring'd in something like that onto the mourners out o' the Scriptures," replied Mr. Hannifin, innocently. He wasn't the man to steal a sermon and palm it off as his own.

"You turned up one card that I think was wrong," said the Judge.

"Aye?" observed Mr. Hannifin, coldly.

"When you spoke of the Saviour raising the ante," explained the Judge.

"Raising the blind, not the ante," responded Mr. Hannifin.

"But I think it was the dead," persisted the Judge.

"Perhaps so, but it must have been in some other game," said Mr. Hannifin. He disliked arguments based on works of reference, in which he catalogued the Bible.

"That was big where you got in about Pete with a hollow around his head, practising his fingers and fetching a ringer every shot. I led the applause fer that solo, now you hear me! How'd you get onto that Denis?"

"Pete telled me afterwards," returned Denis.

"Did you see him, or dream it?" asked the Judge, eyeing his friend uneasily.

"Seen him," replied Mr. Hannifin, sententiously. "I seen him twice a week since he croaked. Seen him to-night!"

There was a nervous shuffling of feet, and all eyes were bent on Mr. Hannifin.

"Me and him has sat onto his grave and talked about it over a hundred times," continued Mr. Hannifin, settling himself into an easier position, and regarding his audience calmly. "But I soured onto Pete to-night. Me and him is friends no more."

"What was it, Denis?" inquired the Judge, persuasively. "Something wrong about the deal?"

"No," growled Denis, his instinctive love of justice frothing to the surface. "He put me onto a good many rackets that winned every time, but he done a trick to-night that ends it with me and Pete!"

"Didn't represent? Something of that kind?" asked the Judge.

"It was this way," said Mr. Hannifin sternly, rising from his chair and disclosing marvelous problems in subtraction as to the back of his clothes. "Pete was sitting on his grave, and I was leaning over the headstone, and me and him was talking about the feller which come up from the hills to open a school in stud poker. I heard the coyotes all around, but I didn't pay no attention. They was crowding in closer, but Pete was laughing at the game we set up, and I was chipping along with a cackle now and then to save what I had in."

"D'ye mean that he comes out of his grave?" demanded the Judge.

"The same," retorted Mr. Hannifin. And he was so obviously in earnest that his auditors saw that he meant and believed what he said, and they drew closer together.

"Leastways, his spirit comes and we have it out handy," concluded Mr. Hannifin. "But no more! No more! Him and the coyotes can stick it out together now."

"Coyotes pretty thick to-night, Denis," he says, after awhile. "Yes," I says, and then I looked around and I could see their eyes shining.

"Bad place for us, Pete," I says. What'll we do?"

"Well," he says, "it's pretty late, and—"

"What d'ye think he done?"

"What?" demanded the Judge.

"He jest dropped backwards into the hole, and pulled the grave right over him!"

"And what did you do?" asked the Judge, a little disconcerted.

"I dealt myself right out towards town, and them coyotes coming into the game as fast as I was. See them clothes. Them coyotes got the rest, and they got it right outside the door!"

"You think Pete fixed it up to set 'em on you," suggested the Judge.

"Not he," retorted Mr. Hannifin with disdain.

"He wasn't that kind. But why didn't he invite me into the grave when he seen what a fix I was in? That's what sours me. A man who don't know no more about hospitality than that don't get another dog-gone visit out of Hannifin, not until this kind of clothes becomes fashionable!"

"That's so," muttered the Judge.

And another silence fell, broken only by the sharp, angry bark of the distant coyotes, out by the cemetery. And still the clouds of smoke rolled up and along the ceiling in the futile hunt for some place to stain.—
Drake's Travellers' Magazine.

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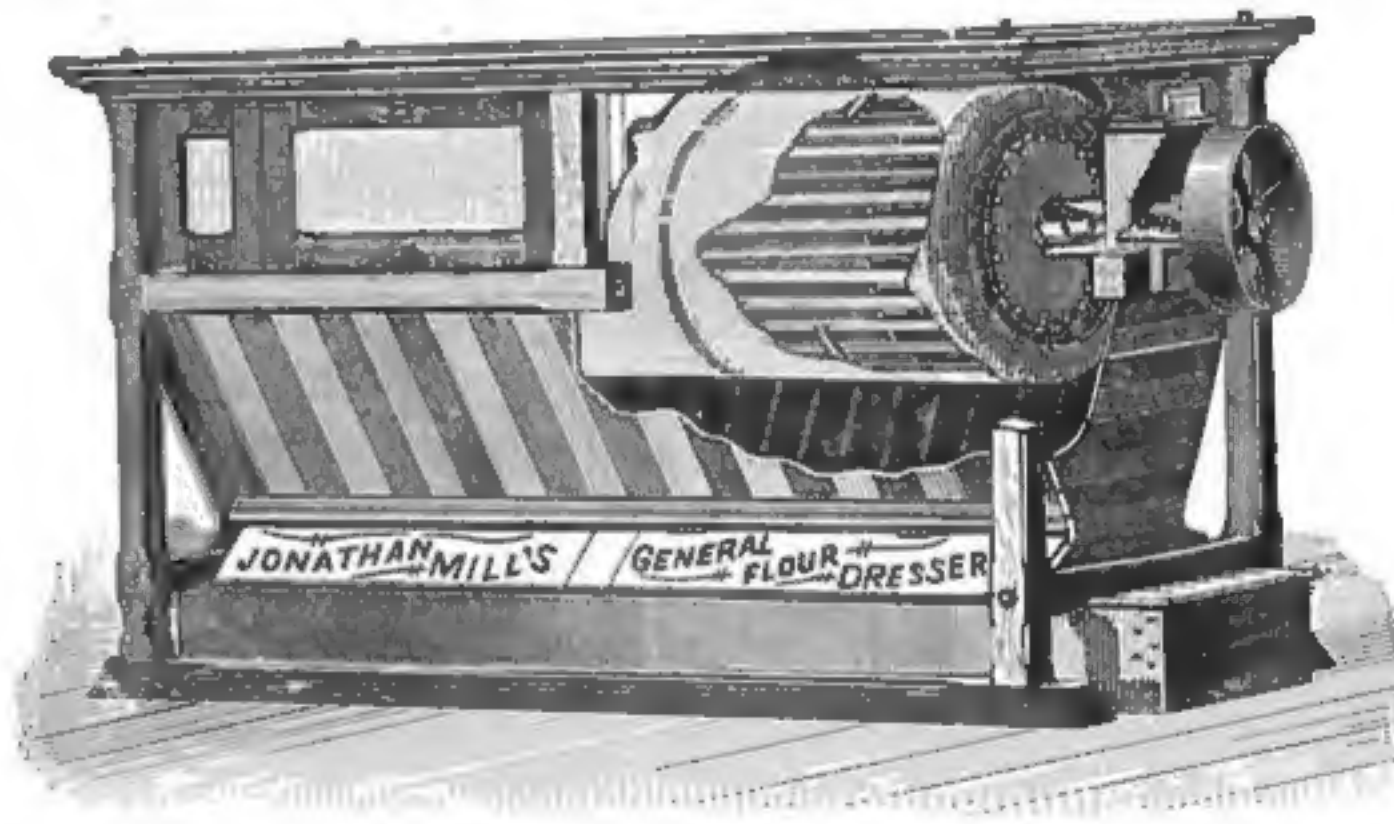
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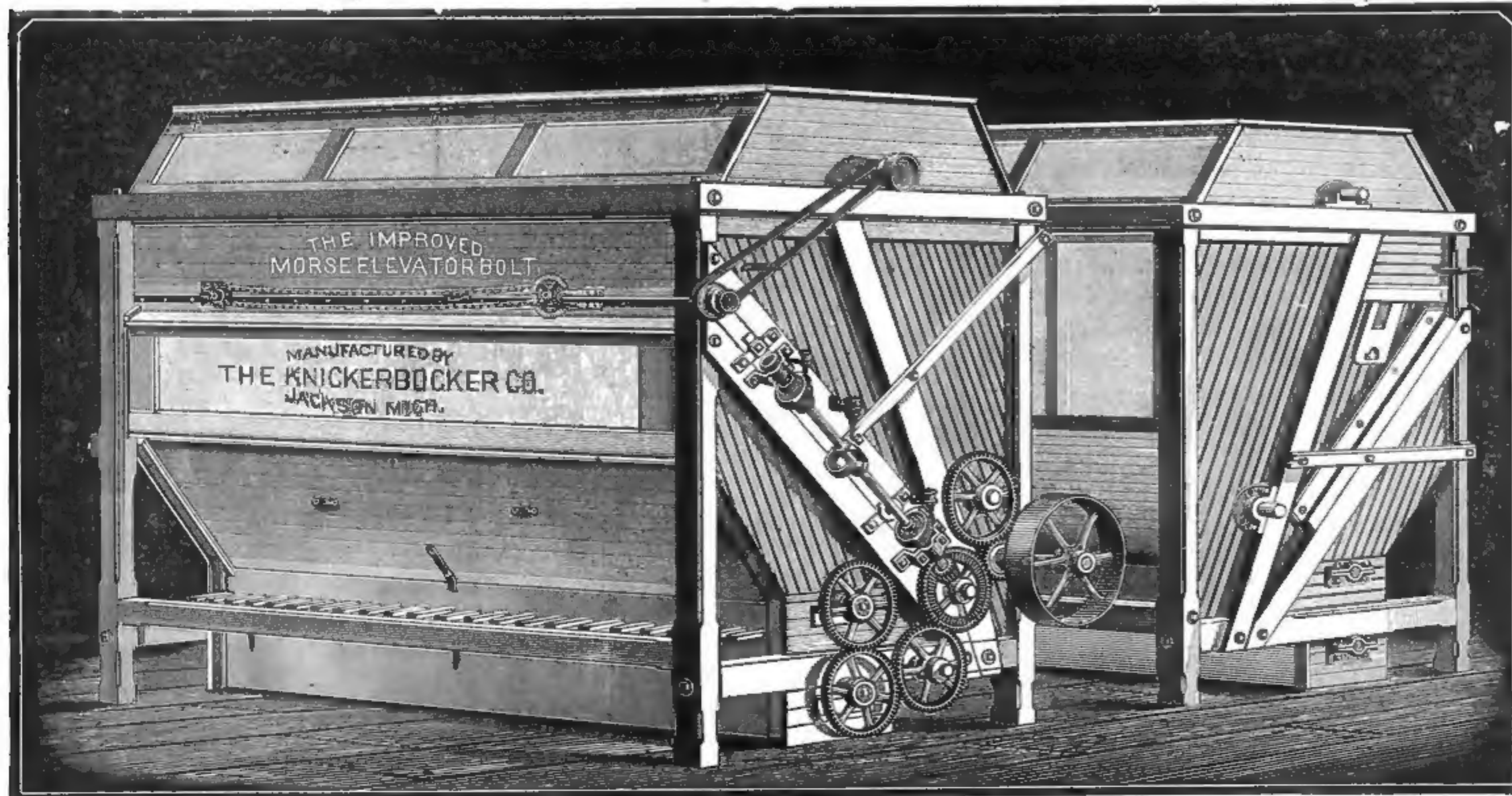
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Office of THE MILLING WORLD,
Buffalo, N. Y., Jan. 7, 1885.

It is gratifying to be able to chronicle a better feeling in the grain markets. The advance which set in on the 2nd inst., was well maintained up to the opening of business Tuesday morning when vigorous hammering by the bears, apparently solely for the purpose of bringing about better buying conditions, brought about a weaker feeling, and values dropped off. The Commercial Bulletin of this morning says: The parties who have for days been preparing for a reaction had their expectations partly realized in an irregular decline, full advantage of which has been taken by the local "scalpers," who have concluded to scalp for a while from the bear side of the market. Transactions on speculative account have been heavy, but it is noticed that outside buying orders are coming in less extensively, and some of the more cautious outside longs are selling out. Cash wheat has declined 1a.1 3/4c, without bringing out exporters, and the market for cash grain closes weak. Estimates of movement towards Minneapolis and Duluth point, it would seem, to largely increasing receipts, with 284 cars reported at Minneapolis to-day and 2,000 cars expected at that point this week; the general interior movement is expected to increase. An unsettled feeling is reported for the West, with the Chicago market weak, under free selling for long account, with the professional or room trading element there interested in breaking the market for a better buying level. Advices from Europe are less bullish than for some days past, with some weak private cables in the afternoon.

The easier ruling of the wheat market, together with the unfavorable weather for out-door handling, has operated against business in flour somewhat, although holders are as firm as ever in their views and refuse to entertain any propositions from buyers on the basis of any lower prices. On the contrary, offerings are moderate, with receipts also moderate and the portion marked through for export usually small. Exporters are casting about this market for low grades and find them in poor supply. The trade demand is moderately active. The best of the late advance in prices is rather feebly maintained, though no change can be readily stated in figures. All eyes are turned towards wheat; to-day's reactions in that market are regarded by some in the flour trade as evidence of a coming break, and most of the buyers are disposed to buy carefully. The demand for rye flour is moderately active, with the market steady in tone at quotations appended. Buckwheat flour is in light demand and without change in prices; the market is weak in tone; \$1.85 and \$2.00 is the range for the general business, and \$2.05 an extreme price for fancy lots. For corn goods there is a moderate demand, and without decided change in quotations, the market is firm in tone. Mill feed moderately active at full figures, with coarse feed continuing firm and scarce. The arrivals of track stuff are small, and the market shows an upward tendency.

BUFFALO WHEAT MARKET.

BUFFALO, N. Y., Jan. 6, 1885.

The boom in wheat has met with a sudden check and the feeling is that the advance was too short to last though the general market has a more healthy tone. No. 1 hard Duluth 1c. off, sales at 94c.

No. 1 white offered at 90 1/2 and No. 2 red at 90c. Corn is scarce, new mixed on track quoted at 44c. Oats are dull 32c. asked for No. 2 white on track.

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FOREIGN EXCHANGE.

Quiet and fairly steady. Posted rates closed at 4.81 1/2 and 4.85 1/2. Actual rates were: 4.80 1/4 a. 4.81 1/2 for sixty days, 4.84 1/4 a. 4.84 1/2 for demand, 4.85 1/4 a. 4.85 1/2 for cables and 4.79 a. 4.79 1/4 for commercial bills. Continental bills were very quiet and quoted as follows: Francs, 5.25 a. 5.24 1/2 and 5.21 1/4 a. 5.21 1/4; reichsmarks, 94 1/4 a. 94 1/2 and 95 a. 95 1/2; guilders, 89 1/2 and 40 1/2. The closing posted rates were as follows:

	60 days.	30 days.
London	4 81 1/2	4 85 1/2
Paris francs	5 23 1/4	5 20
Geneva	5 22 1/2	5 19 1/2
Berlin, reichsmarks	94 1/2	95 1/2
Amsterdam, guilders	40	40 1/2

BUFFALO MARKETS.

FLOUR—City ground clear Northern Pacific spring \$4.75@5.25; straight Northern Pacific spring, \$5.25@5.75; amber, \$5.00@5.25; white winter, \$5.00@5.25; new process, \$5.50@6.00; Graham flour, \$4.00@4.25. Western straight Minnesota bakers, \$5.00@5.25; clear do, \$4.75@5.25; white winter, \$5.00@5.25; new process, \$6.00@6.25; low grade flour, \$2.50@4.75. **OATMEAL**—Ingersol \$5.75; Bannerman's \$6.00; Akron \$6.25. **CORNMEAL**—Coarse, \$1.00; fine, \$1.10 per cwt. **RYE FLOUR**—In fair demand \$3.50@3.75. **WHEAT**—No. 1 hard Northern Pacific 8c better; sales 8,000 bu in two lots and four car-loads at 95c; afterward freely offered at the same price without takes. At the Call Board 95c asked cash, \$1.00 asked May. Sale one car-load No. 2 hard at 87c. Winter wheat held higher; for No. 2 red 82c asked 88c bid; No. 1 white offered at 91c. **CORN**—Scarce and better. Sales three car-loads yellow at 47c, two do No. 2 at 48c and one No. 3 mixed at 46c, all on track. **OATS**—No. 2 white, 38c; No. 3 mixed, 31c; State from wagons, 32@34c. **BARLEY**—Firm Sales 6,000 bu Canadian, called No. 3 at 70c, and four car-loads do at 67c. **RYE**—Steady. Sale one car-load No. 2 at 60c.

THE annual statement of the lake commerce for the port of Buffalo is fairly indicative of the lake trade for the season. While the figures extend into the millions and show that an immense amount of property was shipped and received, yet there is a falling off from some other seasons. The receipts of grain and flour reached 70,000,000 bushels in round numbers, 6,000,000 less than the total for last year, but greater than the aggregate for the two preceding seasons. The rate on wheat was 2.1 cents per bushel on the average, the lowest on record, the maximum being in 1880, when 7.5 cents were paid. It would not have been possible for vessel men to have done business on such a rate were it not for the heavy return shipments of coal. The rate to Chicago on coal started in at 75 cents, increased to 80, and then declined in September to 50 cents. Another advance was made to \$1 in October, this being the maximum rate paid. The shipments of anthracite coal reached 1,224,000 tons, which but a few thousand tons less than those of 1883. It is thought that the railroad troubles caused this falling off, and that the shipments would have been much heavier had it not been that the railroads were sorely pressed for tonnage. The shipments of cement fell off considerably from those of last year. The receipts of lumber reached 241,000,000 feet, a gain of 4,000,000 over last year. The receipts of logs, hoops, and shingles also show a large excess. The receipts of iron were not one-fourth those of 1883. The shipments of grain by rail, received here by lake, aggregate 12,396,000 bushel, against 27,401,000 last year; showing that the Erie Canal more than held its own against the six competing lines. The shipments by canal reached 38,000,000 bushels to 42,000,000 last year, a decline of 4,000,000 against a decline of 13,000,000 by rail. By the figures it will be seen that the lake and canal have not felt the depression to so great an extent as have the railroads.

CHIEF Inspector Frank Drake, of Chicago, has presented his annual report on the grain inspection in that city, containing full statistics and an account of the changes that have been made during the year in conducting the department. An important new rule compels "scalpers" to have their grain inspected on track, and other radical changes are suggested. There have been fifty-four men employed, which number it is recommended be diminished with the close of navigation. The expenses for the year ended Oct. 31, were \$13,395 for registration and \$81,413 for inspection; the inspection fees were \$106,028. As there remains a considerable sum on hand, it is recommended to reduce these fees. The expenses were considerably increased over those of the previous year, on account of employing a larger force of assistants and printing the rules for the use of inspectors and receivers. The corn corner on 'Change caused anxiety to secure contract grade, and to that is due calls for reinspection. Previous to September it had been the practice to post the daily receipts and shipments of grain at 11 o'clock in the forenoon, showing the figures for the previous day, and also a few hours' work of the day of posting. Since that time a new plan has been adopted of posting grain receipts and shipments for the previous day at 9.30 o'clock every morning. This plan prevents any seeming irregularity. The fortnightly meetings of the inspectors have greatly enhanced the efficiency of the inspection department, as the grain is compared and many practical suggestions are offered.

RECENTLY a committee visited Chicago to represent that the average price of wheat in Kansas on the farm was not more than 85 cents. The Agricultural Bureau reports that it is 45 cents in that state, 42 in Nebraska, 46 in Dakota, 50 in Minnesota, 55 in Iowa, 62 in Missouri, and is higher in the other states as the seaboard is approached. The statement corresponds more closely than any of the current reports with the solid fact that wheat growing continues to increase, even in the far western states, where the price received is the lowest. Notwithstanding the reports that the farmers get less than the actual cost of production, the number of farms and the number of acres put into wheat steadily increase. The estimated cost of production in the far western states has been about 40 cents, or even less on some farms, and at this rate it will be seen that some margin or profit, though in many cases a very small one, remains for the farmer even at the extremely low prices now prevailing. The difficulty is greater with corn, which the Bureau reports as averaging only 18 cents in Nebraska, 22 cents in Kansas, and 23 in Iowa. In many of the western states, corn raising is after all only one step in the process of hog raising, the farmer realizing

better prices by feeding his corn to hogs than he could realize by selling his corn in the markets. The price of oats, averaging 28 cents for the whole country, is said to be the lowest ever reported by the department; in Nebraska it is only 19 cents.

THE Canadian American says: The Minneapolis wheat kings do not look with favor upon the operations of the Montreal wheat syndicate which is buying in Manitoba, and they would hail with delight any intimation of a failure in the work of relieving Manitoba farmers. The Montrealers, by reason of their connection with the Canadian Pacific, hold several trump cards, and in this deal are giving Minneapolis millers a taste of what is to come. When the Canadian Pacific is completed wheat will be carried from Winnipeg to Liverpool for about thirty cents per bushel, a rate that will insure the very best possible price to the Manitoba producer. As high as twenty-seven cents per bushel is charged to carry wheat from Central Dakota to Chicago, and a like rate exists between Minneapolis and Northern Dakota wheat markets. One thing is certain: Their roads will either have to greatly reduce their rates when the Canadian Pacific is completed or the country to the north of the boundary line will attract settlers from the American northwest. Minneapolis millers know that the Canadian Pacific is destined to be the shortest route to the seaboard, for they are now engaged in building a road to Sault Ste. Marie to connect with Canada's great artery of commerce.

There is a proposition in Japan to build a vast system of railroads throughout the Empire, hoping thereby to encourage a very depressed rice market, and at the same time to give employment to a large number of idle, unemployed people. The price of rice and agricultural lands has fallen very low, and the projectors hope that they may be able, by a net-work of railroads, to place the rice on the market at a lower cost than now.

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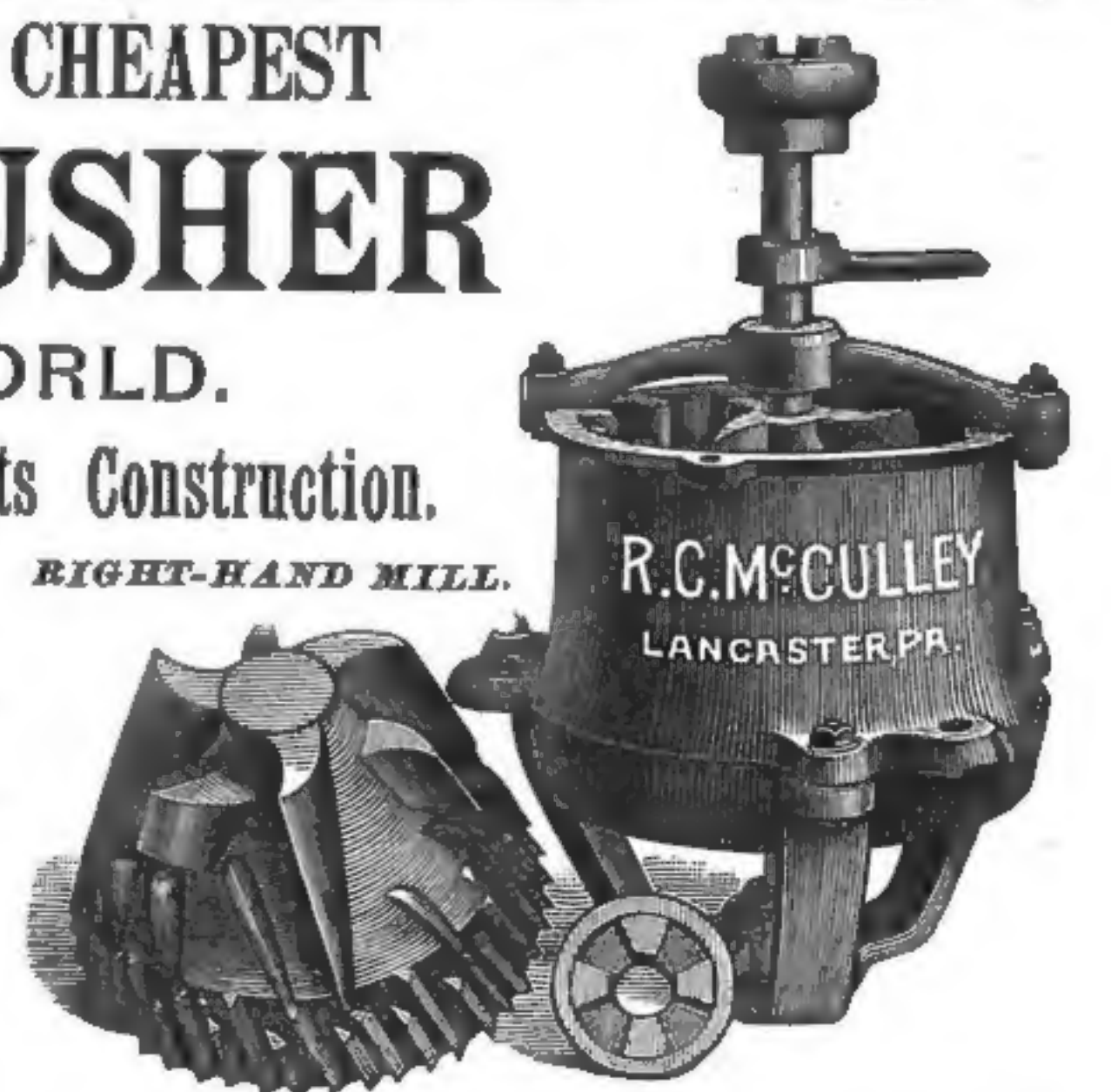
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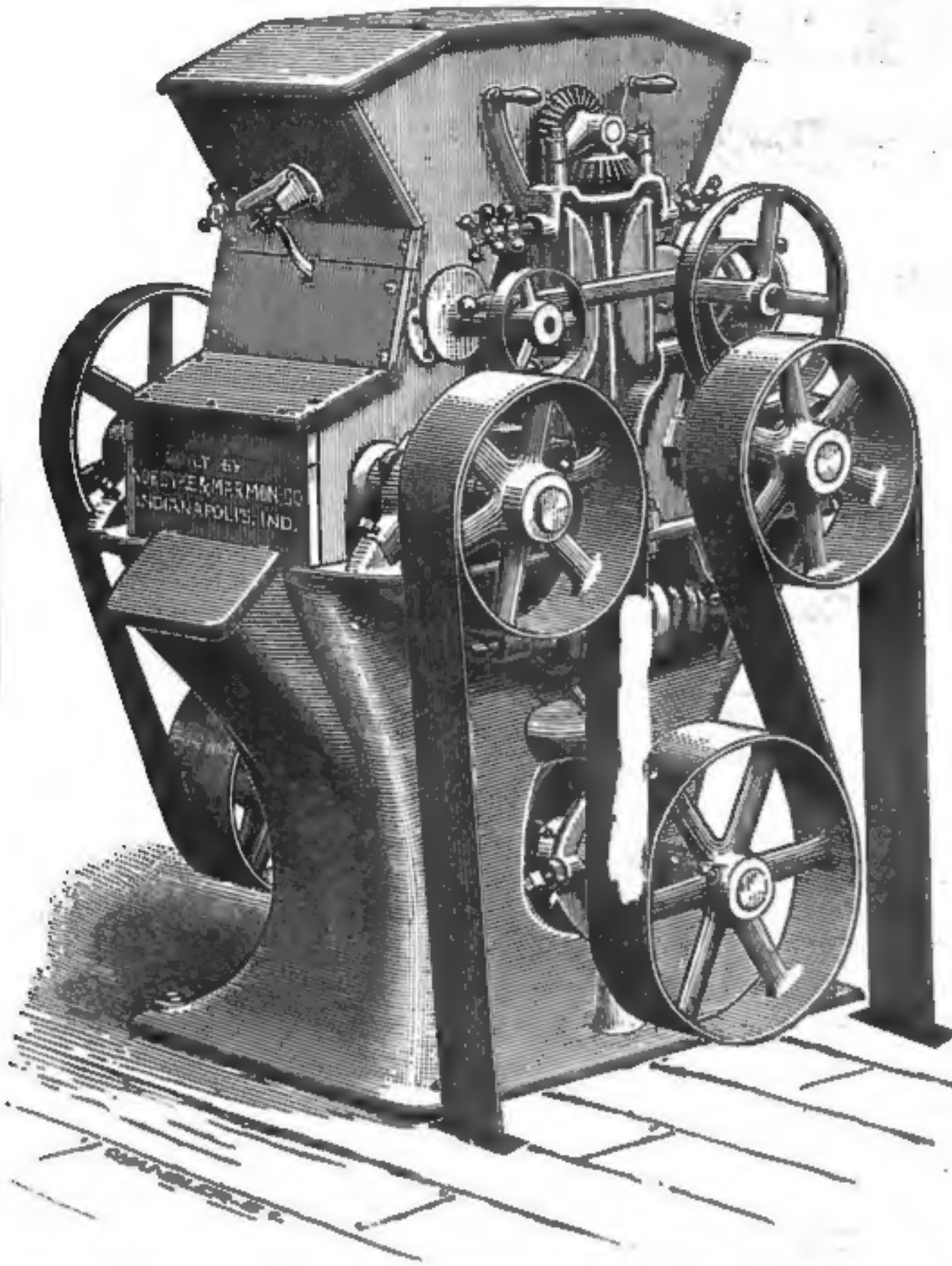


NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Builders from the Raw Material of

ROLLER MILLS, CENTRIFUGAL REELS, FLOUR BOLTS.

WE ARE THE SOLE OWNERS FOR THE UNITED STATES OF ALL THE PATENTS UPON THIS ROLLER MILL.



This Is the Only Roller Mill Made Having All the Essentials Needed In Successful Milling.

500 BARREL MILL IN MISSOURI.

Read what an Old Miller who has Thirty-Four Pairs of these Rolls in Constant Use, Says:

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: In regard to the workings of our new mill erected by you, will say it is fully up to and beyond our expectations. Our average work is fully 38 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors, "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,
Yours, etc., R. M. FAUCETT, Pres.

OFFICE OF DAVIS & FAUCETT MILLING CO.,
ST. JOSEPH, MO., Nov. 28th, 1884.

500 BARREL MILL IN ILLINOIS.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.
Yours respectfully, DAVID SUPPGER & CO.

OFFICE OF DAVID SUPPGER & CO.,
HIGHLAND, ILL., Jan. 10, 1884.

125 BARREL MILL IN INDIANA.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: The 125 barrel All Roller mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading mill furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantee, and the capacity runs over your guarantee. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.
Yours truly, J. T. FORD.

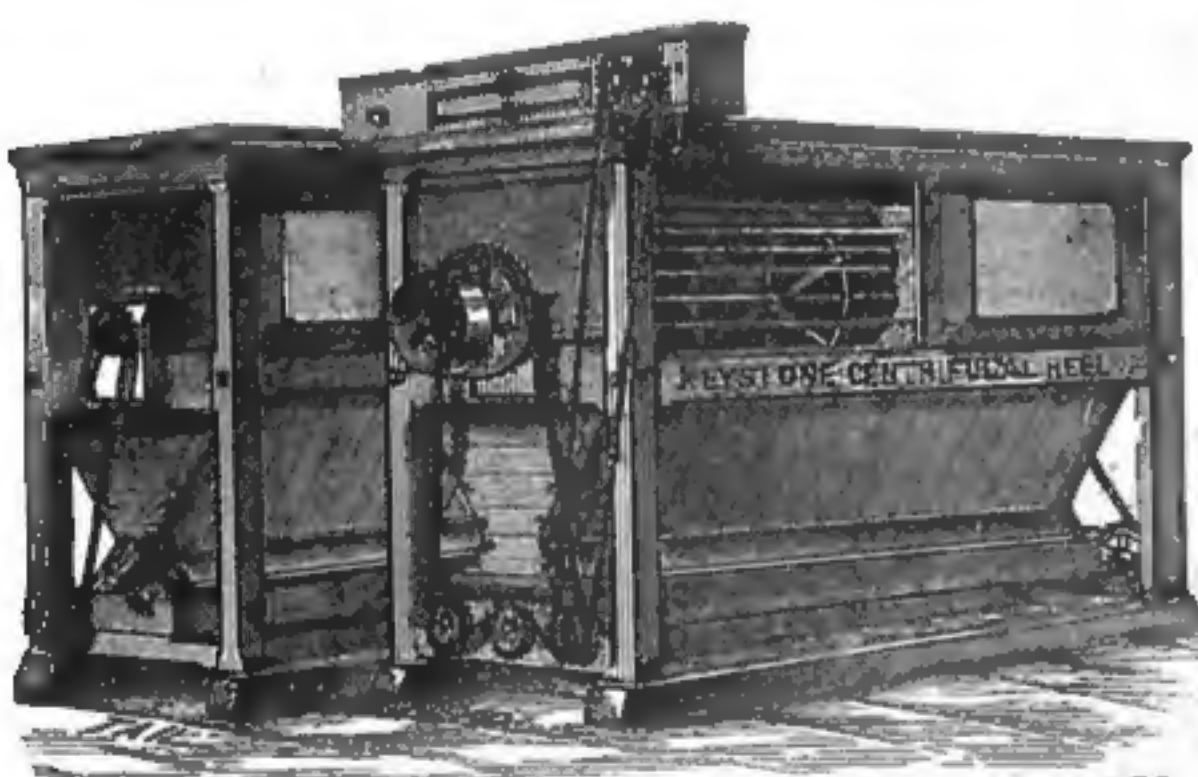
LAFEL, MADISON COUNTY, IND., Jan. 10, 1884.

Letters on file in our office from a large number of small roller millers giving as favorable reports as above. A portion will be published as occasion demands.

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Drag Brush Feed, Tightest Heads, Best Results. Cheapest and Best on the Market. Adapted to all Kinds of Milling. The New Drag Feed Thoroughly Protects the Silk. Sent on Trial to any Responsible Miller.

ROLLER MILLS, SCALPING REELS, PULLEYS, SHAFTING AND ALL KINDS OF MILL IRONS.

Full Stock of Dufour and Dutch Anchor Bolting Cloth.

BEST QUALITY FRENCH BURR MILLSTONES, FOR MIDDINGS, WHEAT AND FEED.

Leather, Rubber and Cotton Belting, Smut Machines, Purifiers and everything belonging to a Flour Mill furnished at Lowest Market Prices. For Circulars, Prices and Full Particulars, address the Manufacturer,

C. K. BULLOCK, 1357, 1359, 1361 RIDGE AVE., PHILADELPHIA, PENN.

UNION STONE CO., BOSTON, MASS.

PATENT MILLSTONE CEMENT.

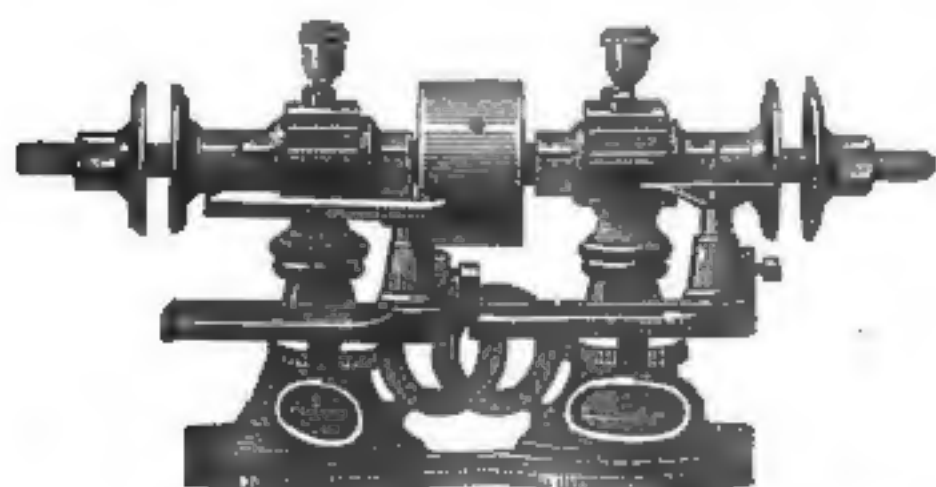
Invaluable to Millers for Repairing and Filling the Joints.

This is a new article of manufacture, and is greatly superior to the preparations now in common use. It has the nature and attains the hardness of a part of the Stone, and assists in grinding. Good Millstones are now in use, composed of miller's use, it is put up in cases of two sizes. Price per case: Small, \$3.00; Large, \$5.00. Otherwise we shall, send C. O. D. by Express, collecting for return of the money. For manufacturers, the Furrows and



Cavities and Seams in French Burr and other Millstones.

use by millers. It is much cheaper, and can be applied by an inexperienced person. It is perfectly use of French Burr Stone, wears evenly with it, and not only fills the cavity, but adheres to and betirely of this preparation. The Leading Makers are Adopting it to Build their Millstones. For We cannot open an account for so small a sum, therefore Cash should be sent with order, otherwise we furnish in bbls. of 800 lbs. Price upon application. Emery Rub Stones, for hand use in Finishing Faces of Millstones.



Emery Wheel Machine No. 0 Has 1/4 Inch Arbor.

Union Stone Co., 38 & 40 Hawley Street, Boston, Mass.

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MILL SUPPLIES { Everything Used in a Mill of Every Kind Always on Hand.

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ELEVATOR BUCKETS, BOLTS, MILL IRONS, &C.

Prices Close and Quality the Best.

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ROLLS RE-GROUND

And Re-corrugated to order. Porcelain rolls re-dressed. Our Machinery for this purpose is very accurate. Can do work promptly.

Case Mfg. Co., Columbus, Ohio

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STEVENS NON-CUTTING ROLLER MILLS

The most substantial in construction.

The best designed frame.

The best feeder.

The best horizontal adjustment.

The best perpendicular adjustment.

The only fine adjustment.

The only successful adjustment made by one hand wheel.

The best spreading device.

The best belt drive.

The best patent noiseless gear.

They have a greater capacity.

They are more easily adjusted.

They are the best in six inch diameters.

They are the most positive in action.

They will out-last any other from 5 to 10 years.

They are famous for evenness and regularity of work.

They will produce more and better shaped middlings.

They will produce less break flour.

They will produce a broader and flakier bran.

They give better results on either soft, hard, or mixed wheats.

The Over SIXTEEN THOUSAND IN USE Testify To Above.

SEND FOR ILLUSTRATED PRINTED MATTER.

THE JOHN T. NOYE MFG. CO., BUFFALO, N. Y., U.S.A.

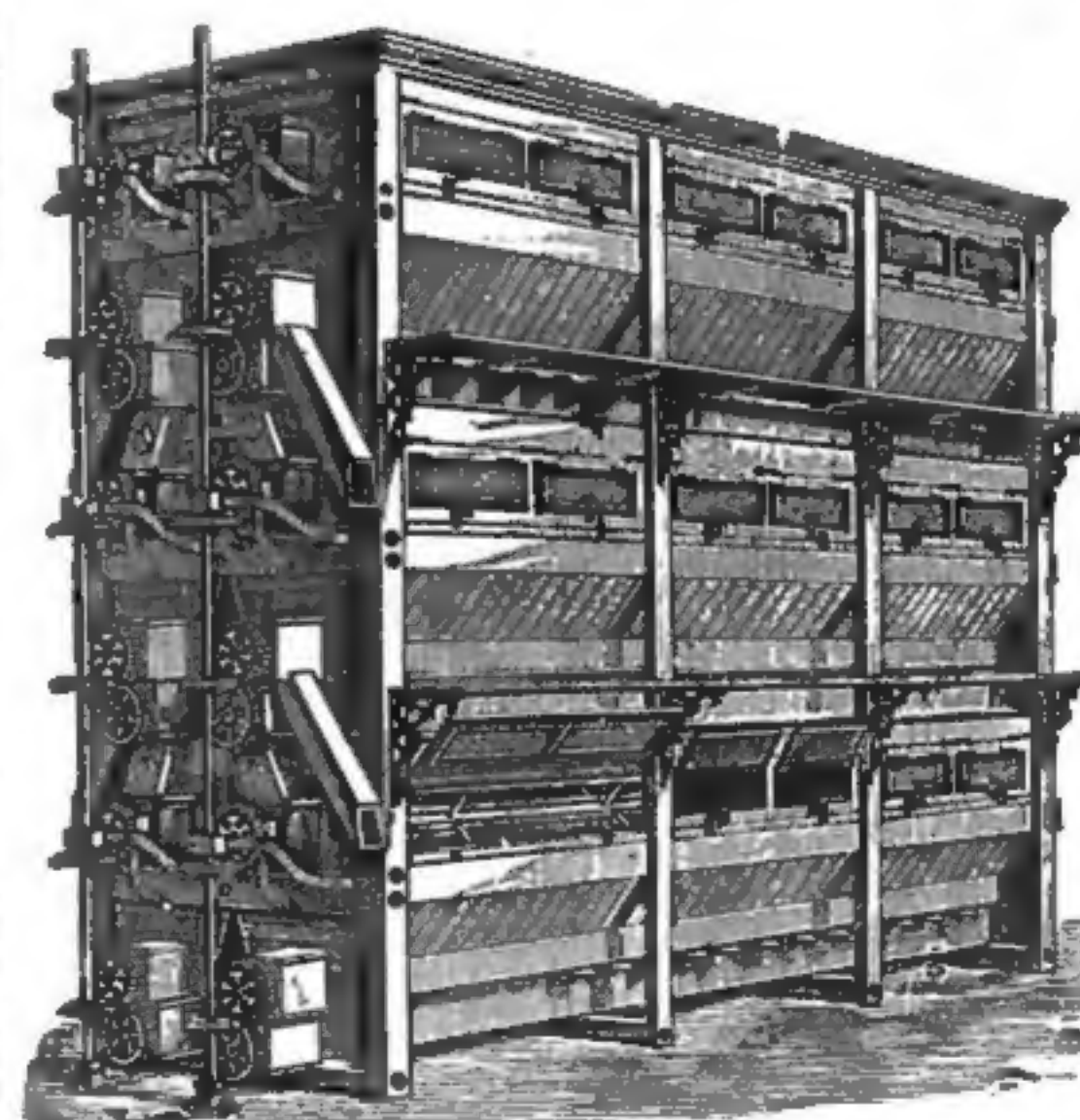


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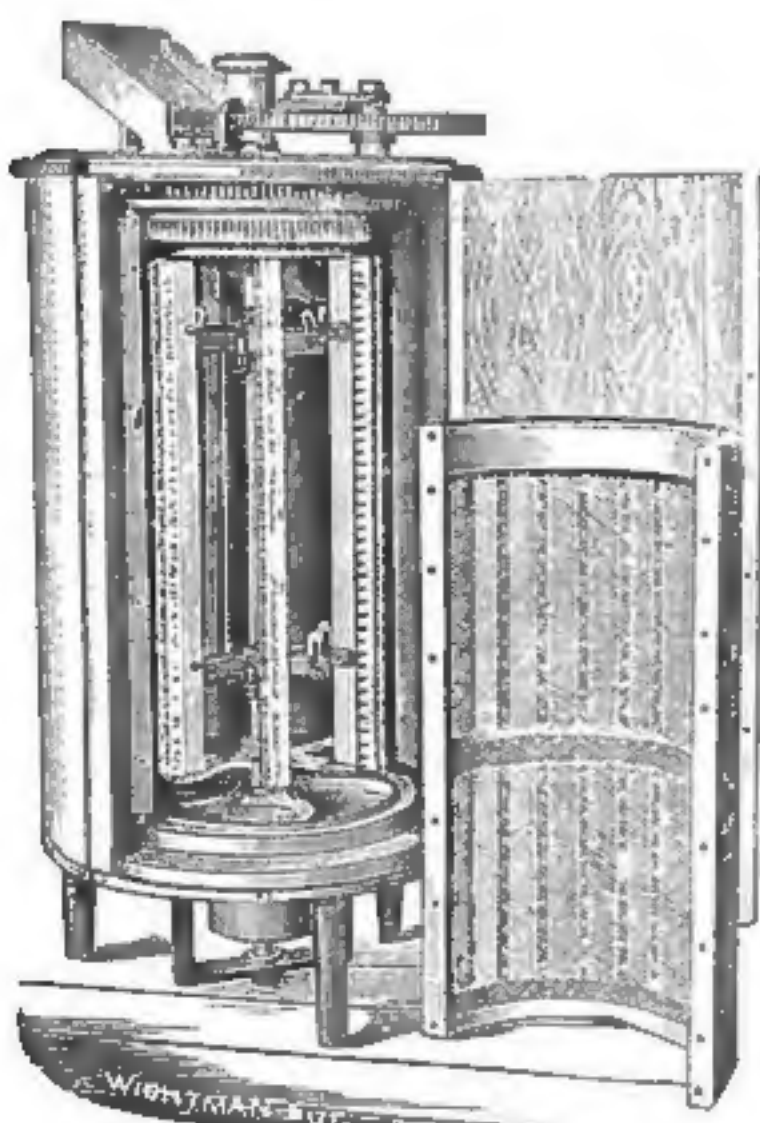
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